

# MANUFACTURERS' RECORD.

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BALTIMORE, NOVEMBER 8, 1895.

THE H. C. Frick Coke Co. has purchased the McClure Coke Co., the price being reported at about \$4,000,000. This gives the Frick Company control of about 12,000 coke ovens out of a total in the Connellsville district of 18,000. It is said that the output of the ovens owned by this one company will now be about 25,000 tons of coke per day.

### To Be Started.

A telegram from Mr. E. N. Cullom, of Birmingham, of the De Kalb Company, which bought out the Fort Payne property some months ago, says: "The Fort Payne steel mill and iron furnaces will be put in operation." Mr. Cullom also wires that no particulars can be given at present.

### How to Attract Attention.

THE MANUFACTURERS' RECORD, of Baltimore, is doing yeoman service for the South in its Supplement, furnishing a description of the Atlanta Exposition. Aside from its immediate circulation, it is largely quoted from and in its way contributes in extending valuable information relative to a section that will feel the good effect resulting from it at an early day. In the issue of the 18th is a complete list of the members of the New England Cotton Manufacturers' Association, with a brief history of the organization. The cost of all this advertising will come high if the day attending the big exposition must be guaranteed by the people of Atlanta, but as the great State of Georgia will participate in any benefits accruing from public attention having been drawn that way, it would be no less than justice to the patriotic citizens of Atlanta were the legislature to make an additional appropriation to divide the deficit, if, as predicted by some, one should follow. The exposition that is being planned to be held at Baltimore in 1897 is in line, but Baltimore and Atlanta are too far from the centre Texas must do some advertising on a large scale, too, or content herself to see the East and Northeast plant millions of dollars in cotton mills and woodworking machinery upon the South Atlantic coast, when a like outlay of capital the same degree of energy, would draw a very heavy percentage of idle capital and brains to her domains.—Galveston News.

Let Texas and every other Southern State prepare to make a great State exhibit at Baltimore in 1897. Let there be generous rivalry to see which shall be able to make the most comprehensive display, and then the good work inaugurated by Atlanta for Southern upbuilding will be increased a hundred-fold.

## The Dry-Dock at Port Royal.

The belt of Atlantic States to the south of Cape Hatteras will never reach the measure of prosperity that is due them until great terminal facilities are constructed at the several seaports. When it is remembered that freights can be carried as cheaply by steamer from Bombay to New York as can be done by rail from New York to Pittsburgh, one gets a better knowledge of the possibilities of a country in having an export trade.

Great steamship companies will not expend large sums at any terminal point until they can be assured that a dry-dock, with its adjuncts of machine tools, are within easy reach. The competition between the several lines is so keen that the vessels cannot afford to steam hundreds of miles only to have their hull-plates cleaned and painted and repairs made to the machinery and propellers, if the work can be done near their terminal ports.

It was, therefore, with special interest that the industrial interests of the South watched the construction of a dry-dock at Port Royal. The gulf and Atlantic States will always be at a disadvantage with the North until there is a great ship-repairing plant south of Cape Hatteras. The commercial and maritime associations from Wilmington to New Orleans fully comprehend the indirect effect of the opening of such a dock, for they know it would be a great factor in securing steamship companies to ply between South Atlantic harbors of the United States and Mediterranean ports.

To the surprise of the business interest of Charleston, Augusta, Brunswick and Savannah, the completion of the dock at Port Royal has not been productive of the results that were expected.

In an official report the dock has been pronounced ready for use, and yet the only vessel which has entered the structure has been the United States monitor Amphitrite. This vessel had been sent in the neighborhood of Beaufort for the purpose of instructing the naval reserves of the State of South Carolina, and while in that vicinity she was incidentally used to test the dock. The failure to use the dock has caused all manner of reports derogatory to the structure to be circulated. Such rumors have a tendency to lessen the development of the South Carolinian and Georgian seaports, as they discourage steamship men from looking in that direction for harbors where terminal facilities should be located.

The exact facts in relation to the dry-dock at Port Royal should be made known. It is true that the dock is practically useless for the purposes intended, but the fault is neither due to the harbor nor to the structure itself. Its inefficiency is due to the inexcusable action of constructing a dock without

building the necessary machine shops and foundries, which are a necessary supplement of such an improvement. The construction of a magnificent dock at an incomparable harbor like that at Port Royal without having a series of engineering shops can be compared with the possession of a fine span of horses and a beautiful carriage without having any harness for the animals.

The national government's failure to have machine shops built and equipped with tools upon the completion of the dock has been a costly mistake to the States of Georgia and South Carolina. It has undoubtedly prevented many steamers from entering Port Royal for a cargo. It has taken tens of thousands of dollars from that locality which would have been expended in repairs to war vessels if the naval station had been in condition to do the work.

At least \$1,500,000 will be expended on repairs to war vessels during the next fiscal year, and if Port Royal could have secured one-tenth of the work the community envioning the dock would have been greatly benefited. The numerous ships visiting the docks for repairs incidentally spend large sums for provisions and stores.

From the report of Commodore Matthews, chief of the bureau of yards and docks, it does not look as if there is to be any improvement in the condition of things so far as the building of machine shops is concerned. He recommends \$300,000 for the dredging of an anchorage. Why a disabled vessel should seek an anchorage near a dock where repairs cannot be carried on is a mystery which the Commodore should explain. There is already sufficient deep water for several large vessels, and the community at Port Royal would be satisfied to see one vessel in the dock continually under repairs, rather than possess an extended anchorage, which will never be visited until the machine shops are built. Every marine superintendent, as well as all captains and engineers of merchant vessels, knows that the dock at Port Royal will practically remain useless to the country and to the business interests of the South until there are supplementary machine shops equipped with the best grades of machine tools.

Commodore Matthews also recommends that a small hospital and storehouse should be built at this naval station. That these buildings will be a convenience to the few sentinels and watchmen stationed there cannot be doubted, but that such edifices will tempt a vessel with a disabled propeller to enter the dock is beyond possibility.

The chief of the bureau of yards and docks recommends the expenditure of nearly \$2,225,000 at the various yards for necessary improvements. Of this amount the South Atlantic States are to

receive a sum sufficient to dredge an anchorage, to build a small hospital and to erect a small storehouse. The failure to provide buildings for machine shops practically means that the dock at Port Royal will only be used when the docks at New York and Norfolk are overcrowded, and when some vessel requires a few hull-plates to be scraped and painted.

There are important military as well as commercial reasons why a great dock, with its necessary steam engineering plant, should be ready for immediate service at some point south of Cape Hatteras. Those who are instrumental in securing an appropriation for the dock at Port Royal deserve the thanks of the commercial bodies of the South. The machine shops are the vital parts of such a repair plant, and the senators and representatives from the States of South Carolina and Georgia have an important duty before them in urging upon the Congress to secure additional appropriations for the machine-tool outfit. Their earnest efforts to have this naval station properly equipped with appliances for repairing war vessels, and, in case of necessity, merchant ships, will undoubtedly be aided by the senators from other States. Tennessee and North Carolina must also have an outlet to the sea to the south of Cape Hatteras, and their indirect interest in the establishment of a great ship-repair plant at some point on the South Atlantic coast is very great.

Commodore Matthews will also urge the building of three more docks. The construction of such additional docks may be a necessity, but surely it should be secondary to the completion of those which are only half constructed, for such may be said to be the condition of a dock which has no surrounding machine plant.

From this time forward our Southern representatives in both branches of the Congress should feel that they have a special interest in the naval appropriation bill. The commercial interests of California and Puget Sound were aroused to the fact that the Pacific coast should concern themselves in regard to naval affairs. By persistent and earnest work they have made it compulsory for the Navy Department to build some of the war vessels on the Pacific coast. The representatives from the South Atlantic States should hereafter insist that at least a portion of the naval vessels should be repaired at Port Royal.

The early completion of a steam engineering plant at Port Royal would bring to South Carolina a trained force of skilled artisans, whose presence would have a great tendency to develop the technical training of the envioning country.

The exposition at Atlanta has called renewed attention to the necessity of this dock, and if it had been in read-



iness for service upon the opening of the Atlanta Exposition, many capitalists of the North would have visited the harbor to have personally inquired into the maritime possibilities of the seaport.

#### More Hustle Needed.

The rivalry now being developed between Chicago and New York—one representing the West and the other the East—as to which shall hold the dominating position in the trade and financial interests of the South, can be viewed by the people of this section with some degree of satisfaction. There was a time when the South had a hard fight to enlist the interest of either the West or the East in its business affairs, but that has now passed. The whole country now realizes that the South is to be the theatre of the greatest activity and progress, and that its development offers a rich field for the merchant, the manufacturer and the capitalist of other sections.

But this rivalry may well cause the South to study the situation more carefully than it has done. If other sections see such great opportunities for business and for investment, why should not the South itself take hold of its own development more vigorously than ever? There are hundreds of towns in this section which could easily start some new enterprise and take on new life if their people would get together and do a little hustling, instead of waiting, Micawber-like, for something to turn up in the shape of an outside capitalist ready to do for them what they will not do for themselves. There are towns of 1500 to 2000 population all over the cotton belt begging somebody to come and build them a cotton mill, when they could easily build a mill and own it if they would only make up their mind to do it. Unless such places wake up they will forever remain as dull and stagnant as they are now. During the next ten years there will be a marvellous change throughout the South, but there will be many dead towns, just as there are today many dead ones in New England and Pennsylvania. It is by no means true that natural advantages can be safely counted upon to build up a town. Many dead towns have greater natural advantages than their nearest active, progressive city. One had energy, push, hustle, and did not depend upon what nature had done for it, and the result is prosperity; the other trusted to natural advantages, and is too dead ever to be revived. Its opportunity has forever passed. Its neighbor has filled the place, and there is no room there for another city. The South must, as a whole, do what a few progressive men and a few progressive towns and cities are doing, and then there will be a more active development than we have yet dreamed of.

#### To Do Away with Horses.

The horse, having been supplanted in street-car service, is soon to have a still more active rival in motor vehicles. It looks now as though lovers of good horses will soon find their favorite rapidly supplanted by petroleum, gasoline or electricity, even for all country-road purposes. The hold upon public attention which the motor vehicle has already secured will surprise those who have not

watched this movement. All indications point to as great a furore over horseless vehicles as we have of late years had over bicycles. The success of such vehicles in France has demonstrated their utility, and now many of the leading manufacturing concerns of the country have taken up this new line of industry with a determination to vigorously push it. The Chicago Times-Herald, desiring to promote, encourage and stimulate the invention, development, perfection and general adoption of motor vehicles or motorcycles, lately offered prizes amounting to \$5000 for the best vehicles. In this contest the question of speed is not the only requisite to be considered. It would be possible for an ingenious mechanic to construct a machine with which he could easily outstrip all others in this contest, and yet that device would be of no utility and the outcome of no value to the world from a practical point of view.

It is the desire of the paper that this contest shall add to the sum of our mechanical knowledge in this, the new branch of the science of transportation.

Nearly 100 entries have already been made, many by well-known firms now engaged in machinery manufacture, carriage making and kindred interests.

So great is the attention now being given to the horseless vehicle that a new paper known as *The Horseless Age* has been established in New York, and a study of its pages shows an astonishingly large number of vehicles already constructed and ready to seek public favor. The revolution which this industry threatens to work in transportation of people and freight is an interesting study.

#### Two Kinds of Immigration.

In a recent issue the Washington Post takes up the question of Southern immigration and discusses it in these words:

The immigration question, as related to the progress and development of the South, is being discussed by many of the newspapers of that section. Although the South has little, if any, need of additional labor, being more favorably situated in this respect than any other part of the country is or ever has been, the Southern papers appear to have arrived at the conclusion that it would be a good thing if a portion of the stream of European immigration flowing to our shores could be turned in their direction.

It is undoubtedly true that the magnificent development of the Northern and Northwestern States is largely the result of immigration. While the white population of the South is chiefly composed of the descendants of Englishmen who came to this country in the colonial period, the North is largely populated by immigrants and descendants of immigrants from Ireland, Germany, Scandinavia and other countries of continental Europe. Many of the newer States made great and costly efforts to bring immigration within their borders, and most of them were benefited by such enterprises. But among the immigrants that have been pouring into the country in recent years there have been many thousands of "able-bodied men" who have not been helpful to the communities in which they have settled. They have added to the squalor of the slums in all our cities, and have changed some of the mining sections and communities from peace, order and comfort into vice, strife and wretchedness.

The immigrants that the South needs most are men with a little money to buy farms. We are glad to know that she is getting this class in large numbers. The movement of farmers from North to South promises much more for Southern development than can be derived from foreign immigration. We admit, however, that the latter will be desirable just as soon as some plan can be devised for sifting it.

The comments of the Post are timely as to foreign immigration, but if "domestic immigration" continues to increase Southward at its present rate, the Southern States will have little need of European settlers. Already the col-

ony in Southern Georgia, recently founded through Hon. W. J. Northern and others, has 800 Americans from the West; a Michigan colony is about to locate in Florida; another Western colony has selected North Carolina as its future residence. These are but instances the MANUFACTURERS' RECORD has noted of a movement which bids fair to greatly increase the South's population.

#### The Indifference of Some Southern Congressmen.

The New Orleans Picayune, in commenting upon the letters of congressmen in regard to the Nicaragua Canal, says:

Of the Louisiana senators no mention is made, but it is known that Senator Caffery has opposed the enterprise. What his position is now is not known, but it is supposed to be unchanged from what it has heretofore been. The only members of the Louisiana delegation whose replies to the MANUFACTURERS' RECORD's questions are printed are those of Congressmen Ogden and Buck. They are as follows:

Says Hon. Harry W. Ogden, of the fourth district of Louisiana:

"Yes. I favor the construction, ownership and management of the Nicaraguan Canal by the United States government alone. I believe it will prove of the greatest possible benefit to the agricultural, manufacturing and commercial interests of the United States. I will not, however, favor government aid if the canal is to be built or controlled by any private corporation."

This is a manly, outspoken expression in favor of the great enterprise.

Hon. Charles F. Buck, of the second district of this State, has no opinion on the subject. He says:

"Am unable to express an intelligent opinion or form a decision for which I would like to be responsible. My inclination tends towards favoring the project, and, with proper safeguards, might favor government aid."

It is a remarkable fact that the greater numbers of the Louisiana delegation in the federal Congress are opposed to a measure which is not only for the greatest benefit of the whole country, but will, if carried to accomplishment, be of special importance to Louisiana and the Southern cotton interest. This is a very peculiar fact, and one that the people of this State and of the South would be glad to hear explained.

The Picayune is correct. The South should demand of its representatives very decided action in favor of this canal. Though this section would be benefited almost beyond calculation, and more than any other part of our country, the business men and the congressmen of other sections are, as a rule, taking a broader American view of this enterprise than the South, and are doing more to urge its construction. The South must wake up on this most vital matter.

A later issue of the Picayune says:

Some days ago the Picayune printed a letter from Congressman Harry W. Ogden, of the fourth district of Louisiana, expressing his unqualified approval of the proposition to construct the Nicaragua Canal under the control of the federal government of the United States.

The Picayune now prints a letter from Gen. Adolph Meyer, Congressman for the first district of Louisiana, to the same effect. It is copied from the MANUFACTURERS' RECORD, of Baltimore, to which paper it was addressed in response to inquiries. It is as follows:

"Yes; under safe and conservative provisions for the government's security. I regard the construction of this canal as of vital importance to the further development of our commercial and industrial interests."

It is remarkable that so few of the Louisiana members of either House of Congress are in favor of this great work, but it is true that some, like Senator Caffery, have pronounced against it, and others refuse to commit themselves. But it will be built despite their opposition, and it will operate as an enormous factor in the prosperity of Louisiana, New Orleans and the entire South.

THE Business Men's Association of Norfolk at its last meeting tendered a vote of thanks to Mr. Walter Sharp for preparing the book on Norfolk's advantages, which has been referred to already by the MANUFACTURERS' RECORD.

#### A Strong Statement for Nicaragua.

THE MINING & DREDGING POWER CO., }  
NEW YORK, October 25. }

Editor *Manufacturers' Record*:

I am in receipt of your valued paper of October 11, in which there is an article referring to the canal operations of both the Panama and Nicaragua routes. There are so many gross inaccuracies regarding the feasibilities of both routes mentioned by your correspondent that I ask for space in your esteemed paper to refute some of them.

First, I cannot make any rhetorical display like your correspondent, and, further, I am not familiar with the diplomatic part of the question, being only a practical man and claiming to have some knowledge of the work required at both places.

For many years I have been going to both countries in command of steamships out of this port, and have crossed both routes many times from the Atlantic to the Pacific, and resigning my command in the Pacific Mail Steamship Co. to accept a position in the Slaven Dredging Co., on the Panama Canal, where I was for two years. On the failure of the Panama Canal Co. I transported the plant of the company to Greytown, Nica., opened the harbor in eight days with the dredges, gaining a depth of nineteen feet, and taking in coal and lumber-laden steamers without difficulty, afterwards excavating the canal for two-thirds of a mile, when the work stopped.

Now, regarding the Panama route, it is impracticable without a tremendous cost. One of the great difficulties is in controlling the Chagres river during the rainy season. I have seen the work of months and all the plants of both American and French companies swept away in a night. So irresistible is the flood of the Chagres that we had to build a lateral canal (which is partly done) to carry off the surplus water.

From Colon to Mindi, a distance of about five miles, there is only about ten feet in depth excavated, when hard coral and rock is encountered, and still remains for the whole distance. The balance excavated reaches about four miles more, where a depth of about twenty-three feet is obtained.

The difficulties at Culebra, the highest point of the route, presents some engineering features which as yet have not been solved, nor will be for some time to come. I deny absolutely the statement of your correspondent that two-thirds of the canal is finished; not one-third has been done, and even that has filled up in many places. Where I could not get a boat down, drawing only four feet of water, five years ago, what must it be now after all cessation of work for that time? Very little work has been done on the Panama side, and scarcely any work is being done now; only a few men at Culebra are there, simply to hold the concession.

The floating plant is worthless, having been in the intense salt water of that locality for years, and the property on land has gone to rust and ruin.

The climatic conditions of the country are so fatal to foreigners that there can be no comparison with the climate of Nicaragua, and, further, the Panama Canal will be a salt-water canal, while that of Nicaragua will be a fresh-water canal, a contingency which has escaped the observation of your correspondent, and a most important advantage, as the ocean steamers and ships passing through the canal will have the opportunity—of great value to them—of having their outer hulls cleaned by the action of the fresh water in transit. This will be an advantage to steamers passing through the canal almost equivalent in value to the amount of tolls paid by them, a fact which has never been considered by the enemies of the Nicaragua Canal route, or by the advocates of the Panama Canal route.

Now, as to the Nicaragua route, I be-



lieve that the company has not the remotest idea to adopt the Colorado entrance to the river. The bar of that river is located fully three miles from the land and dangerous and difficult to remove; having crossed it many times, I know whereof I speak. It has been the aim of Mr. Menocal, the able engineer of the Nicaragua Company, to keep away from the Colorado, owing to the bar and the rapidity of that tortuous river, as at least 85 per cent. of the water of the San Juan, at its junction with the Colorado and Greytown branch, leaves by the former river.

There is no finer harbor on the whole Central American coast than that of Greytown, and only requires dredging out. This is required in the harbors of even New York and Liverpool. There are no engineering difficulties on the route, and as to the length of the canal being greater than that of Panama, fully two-thirds of the route is in deep, fresh water, where a steamer can go at full speed. The conditions of soil and climate are not the same, as we never lost a man from sickness while I was at work there, and the nights are always cool in Nicaragua. Having had charge of all dredging operations at Greytown, I assert that there is no trouble in maintaining a uniform depth of thirty feet at the bar and harbor, no matter what prejudiced parties may say.

I submit that the knowledge of your correspondent as to navigation is somewhat crude, as there is a saving of 700 miles by the Nicaragua route on the Pacific side to San Francisco and about 150 miles on the Atlantic side as compared with the Panama route. Having made many voyages in command of steamers for the last twenty-eight years on the Isthmian route, I have yet to learn that we have to sail around Cuba in order to reach either Colon or Greytown.

In conclusion, I wish to say that about \$4,000,000 has been spent on the Nicaraguan route, while at Panama \$200,000,000 has been spent, and only one-third of the work accomplished. I make this last statement without any reservation and from actual survey. The wish that the Panama Canal may be built by the French, and control then assumed by the United States, is so contemptible that I dismiss it at once. From practical knowledge of the route, I state that the Nicaragua Canal can be built for much less than \$100,000,000, and ships to pass through in less than five years.

THOMAS H. MORTON.

#### More Letters on the Nicaraguan Canal.

We continue the publication of letters from congressmen on the Nicaraguan Canal question. About 150 letters have now been received, nearly all being heartily in favor of the construction of the canal by the government or by means of government aid:

W. H. Doolittle, Tacoma, Wash.: "Answering inquiries concerning Nicaragua Canal of 11th inst., I have this to say: If special Nicaragua Canal committee appointed under act of last Congress makes a favorable report upon the feasibility of the canal, I shall most assuredly be in favor of the government aid provided for by attempted legislation in the last Congress by a bill similar to that passed in the Senate, of which Senator Morgan, of Alabama, was the author, with some additional restrictions provided for in the House committee bill. There is no work before the country at this time of such vast and vital importance as the construction of the Nicaragua Canal. It will be of advantage to every portion of the Union, either directly or indirectly, and will result in broadening opportunities for interstate and foreign commerce as nothing else can do. This government should, in behalf of the Nicaragua Canal, at once act in a patriotic American manner. The canal will mean

doubling, at least, of the efficiency of our navy in case of difficulty with foreign nations. Opposition, of course, may be expected from people abroad interested in the Suez Canal and its securities, but such and all other opposition to the undertaking of this work immediately, as proposed, must count for naught when the great results to this country are considered. Let us, then, take up this work at once without further hesitation and pass legislation that is necessary to insure its speedy completion."

William Baker, Washington, D. C.: "If it should be demonstrated by the special Nicaraguan Canal committee appointed by Congress that the canal is entirely feasible and practicable, I am decidedly in favor of the government constructing it. I will, however, oppose aiding any corporation in its construction. The government is fully committed to the improvement and construction of waterways for the bettering of our commerce. I am thoroughly in accord with everything that tends to the commercial development of the country."

Robert J. Tracewell, Corydon, Ind.: "With the present light I have on this subject I would favor government aid to this enterprise, but my present opinion is not fixed, and I could give no definite answer until I further understood the facts."

J. S. Willis, Milford, Del.: "I will. I think the United States ought to grant the enterprise a liberal subsidy and hold a suzerainty or control over it."

E. M. Woomer, Lebanon, Pa.: "Yes; probably I should favor such aid. The construction of the Nicaragua Canal should form an integral part in the general policy of this country to maintain a preponderating influence upon the Western Continent. Recognition of the belligerent rights of the Cuban insurgents, opposition to England's aggressions in Venezuela, and, more important than either, reciprocity with the peoples of South and Central America should also be included in our foreign policy."

J. V. Cockrell, Anson, Texas: "I would favor government aid, and at the earliest date possible. I favor control by the United States government as a safeguard to our commerce and for the protection of our Pacific coast."

Fred T. Dubois, Blackfoot, Idaho: "Yes; because I think it for best interests of the country."

#### The Nicaragua Canal.

One of the most important subjects to come before the next Congress is the question of the relations of our government to the Nicaragua Canal project. A commission was appointed at the last session to investigate the feasibility of its construction, and its report will bring the matter up for action next winter.

No doubt is felt by anyone conversant with the facts that the commission will make a favorable report. The practicability of the undertaking being assured, the question is what attitude our government shall take toward the construction of the canal. The MANUFACTURERS' RECORD has tested the sentiment of senators and representatives by sending a letter to every member of Congress asking this question:

"If the special Nicaragua Canal committee appointed by act of Congress shall make a favorable report upon the feasibility of the canal, will you probably favor government aid looking to its early construction?"

Replies from 128 members of the two houses show that Congressional opinion is overwhelmingly favorable, 106 declaring in favor of government aid or control and only two announcing themselves as opposed, while the others are non-committal and may be persuaded to support the affirmative. A noticeable feature of the answers is the emphatic approval of the project that is shown by most of the writers, as, for instance, in the remark of Congressman

Gibson, of Tennessee, that "the Nicaragua Canal is as indispensable to the United States as the Straits of Gibraltar are to Europe."

The argument for the canal and for government control of it is stated very forcibly by Congressman Bowers, of California, who says:

"I am earnestly in favor of the building of the Nicaragua Canal by the government, whether it cost \$100,000,000 or \$200,000,000. I regard it as one of the greatest enterprises that the United States can engage in. It is, in fact, a necessity to enable the Atlantic and Pacific coasts to trade with each other. The long expensive haul across the continent by rail in many respects absolutely prohibits trade between the eastern and western portions of the United States, so both send their money to foreign countries. I don't think that the canal will be of any particular use to the people of the United States if built by a private company. The United States must control it so far as rates of toll are concerned. That's about all we want. It would save every year to the people of the United States more than the \$200,000,000 which it will probably cost in the end."

A gratifying feature of these expressions is the fact that the value of the canal seems to be fully appreciated in all parts of the country. New England Congressmen are as enthusiastic supporters of the project as are members from the Pacific coast, the South Atlantic States or the Gulf States. Senator Gallinger, of New Hampshire, for example, says that "it will be a commercial highway of incalculable benefit to the United States." Representative Morse, of Massachusetts, is of opinion that "its completion would mark an epoch in the history of the world. It would be an artery of commerce perhaps unequalled by any other on the face of the earth, and it should be owned and controlled by the government of the United States. Its importance to us as a nation in time of peace or war cannot be overestimated."

Florida people will be especially interested in the position of Senator Pasco. He says that he has favored the construction of the canal by the government in case that the company that had taken the business in charge should be unable to build it with its own money. He did not, however, approve of the bill reported in the last Congress by the committee on foreign affairs, because it provided that the money should be furnished by the government to enable a corporation to construct the work, while he thought that if the canal was to be built by the government, the money should be handled by United States officials, the work should be done under the direction of United States engineers, and the canal should be the property of the United States and under the direction and control of its officers when completed. He, therefore, introduced the proposition that a board of engineers should examine and report upon the feasibility and cost of the enterprise, and it was carried. "If the report shall be favorable," says Senator Pasco, "it will afford a basis for future action, and I shall be in favor of the construction of the canal as a government measure."

Support of the project is entirely independent of party lines. Republicans are as earnest advocates of the construction of the canal as democrats. Senator Morrill, the New England republican, and Senator Palmer, the Illinois democrat, join hands in advocating its building by the government. With congressional sentiment so strongly in favor of such action, a measure ought to be promptly passed.—Jacksonville (Fla.) Citizen.

THE cotton compress of the Aberdeen Hope & Cotton Oil Mills Co., at Aberdeen, Miss., was burned on the 28th ult. The compress was valued at \$45,000 and insured for \$18,000.

#### THE SOUTH BEFORE THE WAR.

##### A Statement of Its Many Sources of Wealth.

At the risk of wearying some of our readers with constant repetitions of facts about the South of ante-bellum days, in order to correct erroneous impressions and to indicate the future of this section by its past, the MANUFACTURERS' RECORD republishes the following letter from the Boston Herald:

"To the Editor of the Herald:

"In your issue of October 5, in discussing the South's progress, you say:

"Side by side with the growth of what used to be the only source of Southern wealth there have been growing up a more diversified agriculture and the beginnings of a wide range of manufactures. \* \* \* But the fact that these resources remained so long undeveloped and are now coming so fully into evidence argues a change in the spirit of the people more significant than the inexhaustible bounty of nature. \* \* \* The rapid acceleration of Southern progress may be due partly to an infusion of Northern energy, but it is mainly to the work of Southerners who were too young to know anything of the war or its passions, or who were born after its close. In the hands of this generation the South has taken its first great stride of real progress."

"If you will permit me to criticize these statements, I should like to point out wherein they are incorrect. They are, of course, along the line of generally-accepted publications about the South, but they do very serious injustice to the ante-bellum South. Without a full understanding of what the South accomplished prior to the war, it will be impossible to understand the full meaning and force of the present development.

"I do not wish in any way to be understood as saying a word in favor of slavery, for it is needless in these days to say that every Southern man rejoices that it has forever passed away. I only wish to give some meed of praise to the really remarkable work accomplished by the people of the South before 1860.

"History teaches that prior to the revolution, and for some time afterward, the people of the South were largely given to industrial pursuits. The manufacture of what was known as 'home made' goods of various kinds was intelligently and persistently pursued. The slaves were educated to carry on many lines of industry.

"It is said of Jefferson that his slaves 'produced a ton of nails a month, which were sold at a good profit,' and that they annually made upward of 2000 yards of cloth, used by his family and the slaves. Washington's father was an iron-ore miner, and also interested in the manufacture of pig iron. All through the South the leading men of the day were interested in industrial pursuits. Even South Carolina over 100 years ago offered a bounty to all who would engage in iron-making. The development of the iron interests of that State was pushed with considerable vigor, resulting in the establishment of a number of furnaces and rolling mills, and over fifty years ago cannon and gun were made there.

"The tendency of the people of this section was so very largely toward industrial pursuits as to have justified the expectation that the South would take a leading position as one of the world's great manufacturing centres. That this would have curtailed the extension of slavery, and possibly brought about its abolition long before this result was accomplished by war, is probably true. But, in studying the advance in mechanical pursuits of the negro race, as exhibited at the Atlanta Exposition, it must be remembered that in slavery days there were many skilled mechanics among the negroes—good carpenters, good brick-



layers, good workers in other lines of industry—many slave-owners having found it profitable to train their slaves in mechanical pursuits.

"When the cotton gin came into existence, however, it created a market for capital, brains and muscle such as the world has rarely seen. It was natural that the whole force and power of Southern energy and capital should be turned into the business which yielded the largest financial results. This was cotton-growing, yielding enormous profits when cotton was selling at from twenty-five cents to forty cents a pound, as it did in the early years of this century.

"But this was not cotton-growing to the exclusion of the diversified agriculture, as is generally supposed. The South pressed its ever-widening cotton-field to the utmost limit, reaping a marvelously rich harvest, but with the cotton-field there was also the grainfield. There was also widely diversified agriculture.

"The following table shows these facts very clearly:

Crops in 1860.	Yie'd in the South.	Yield in remainder of the country.
Corn, bushels.....	358,153,000	472,297,000
Wheat, bushels.....	44,800,000	125,200,000
Cotton, bales.....	5,196,000	None.
Tobacco, lbs.....	351,500,000	77,800,000
Rice, lbs.....	187,000,000	None.
Sweet potatoes, bus.....	38,000,000	3,600,000
Sugar, lbs.....	302,000,000	None.
Value of live stock.....	\$467,498,364	\$639,991,952
Molasses, gallons.....	16,314,818	22,232
Beeswax & honey, lbs.....	13,551,151	12,535,704
Value of animals slaughtered.....	\$84,447,110	\$128,424,543
Value of home-made manufactures.....	\$16,585,281	\$7,672,941
Peas and beans, bus.....	11,878,452	3,309,661
Wool, lbs.....	12,565,337	47,946,066
Cash value of farms.....	\$2,308,409,352	\$4,330,004,869

"These facts are presented simply to show the agricultural development of the South prior to the war. The South was not, as supposed, merely a cotton-growing region, but was a country which, having cotton as the most profitable business probably ever presented to any section, developed in connection with it a very wide and profitable diversity of agricultural interests.

"Your editorial refers to the resources of 'the South as so long undeveloped, but now coming into evidence, as arguing a change in the spirit of the people,' and to this you add that 'in the hands of this generation the South has taken its first great stride of real progress'—meaning, of course, its general industrial development; as this is the point of your editorial.

"Again, inviting your attention to a study of the census reports of 1850 and 1860, I wish to present a few facts which may be of interest. From 1800 to 1840 the price of cotton in the New York market ranged from year to year from forty-four cents a pound gradually down to thirteen cents, but averaging for this entire period a little over seventeen cents. In 1840 there came a very marked decline in the price of cotton, and by 1844 it had dropped to an average for the year of 5.63 cents.

"This decline in the price of cotton, reducing the margin of profit, caused a revival of the long dormant industrial power of the Southern people, and once more we find manufacturing interests moving to the front. By 1850 the growth of manufacturing interests, which had not made much progress during the forty years of high-priced cotton, became very decided.

"In 1850 the South had 2335 miles of railroad, while the New England States and the Middle States combined had 4798 miles. In 1860 the South had increased its mileage to 9897 miles, quadrupling that of 1850, while the New England and Middle States had increased to only 9510 miles, or a gain of about 100 per cent. In 1850 the combined mileage of these two Northern sections exceeded that of the South by 2463 miles. The conditions were reversed by 1860, and the South then led by 387 miles.

"This activity was not confined to any one State, but covered the whole South, and every State made a rapid increase in its mileage. The South had one mile of road in 1860 to every 700 white inhabitants; other sections all combined had one mile to every 1000 inhabitants. Thus counting the whites only, the South led the country in its railroad mileage per capita, and if the slaves be included the South still stood on a par with the country at large in per capita railroad mileage.

"In 1850 the flour and meal made by Southern mills was valued at \$24,730,000. By 1860 this had increased to \$45,000,000, or nearly one-fourth of the gain in the entire country, and a much larger percentage of gain than in the country at large, notwithstanding the enormous immigration into the Western grain-producing States during that period.

"The South's sawed and planted lumber of 1860 was worth \$20,890,000, against \$10,900,000 in 1850, largely more than one-third as much as the gain in all other sections combined. In the manufacture of steam engines and machinery the gain in all of the country, except the South, was \$15,000,000 between 1850 and 1860, while the gain in the South was \$4,200,000, the increase in the former being less than 40 per cent., and in the latter over 200 per cent. While the majority of Southern manufacturing enterprises were small, the total number in 1860 was 24,590, with an aggregate capital of \$175,100,000.

"Of course, the war put an end to manufacturing interests, and the disastrous results made it impossible for many years thereafter to undertake the development of the South's manufacturing capabilities.

"With all due respect to the young men of this generation, 'who were too young to know anything of the war, or who were born after its close,' to whom you attribute the wonderful progress of the South of late years, any careful investigator will soon find that many of the men who took a most active part in the war are today leaders in the industrial development now in progress. If you will study the history of the iron-making concerns of the South, of the most successful cotton mills and banks, you will find that the men to whom much of the South's present prosperity is due were men who gave strength and force to the Southern army in its four years' fight.

"When the North understands this situation, when it realizes fully what the South was accomplishing prior to the war, and recognizes the utter impossibility of any industrial development from 1860 to 1880, it will then more fully appreciate the full force and meaning of the predominating Anglo-Saxon power in the South.

"Until these facts are fully understood the North will not fully comprehend the magnitude of the development and prosperity which is ahead of the South. Whatever there is of strength, of force, of ability to organize and control in the Anglo-Saxon race is going to find its highest fulfillment in the Southern States, for nowhere else has the Anglo-Saxon element such a preponderating influence.

"This phase of the South's position in the business world is now attracting the attention of thoughtful people everywhere. The man who wants to measure the South's future must remember this fact—remember what the people of this section did in times past, and then couple with these the fact that no other equal area on earth has such a marvelous combination of resources and advantages for the creation of wealth and the support of a dense population.

"As one of the younger generation of the South, I feel that due praise must be given to the great work accomplished prior to the war and to the older men of the South, many of whom are today its foremost industrial leaders. RICHARD H. EDMONDS, Editor and General Manager of the Manufacturers' Record, Baltimore, Md."

### Estimates of the Cotton Crop of the United States, 1894-95.

Latham, Alexander & Co., New York, have issued a circular letter in regard to the cotton crop in which they say: "Having received many letters of inquiry concerning the probable total cotton crop of the United States for this year, we sent out on the 26th of October 3500 letters to selected and reliable correspondents—banks, bankers, cotton commission merchants, brokers, proprietors of public gins, railroad officials and planters—covering every cotton-growing county in the South, seeking information, believing that the average of the replies we received would likely prove more correct than the estimate of any individual remote from the cotton-fields.

"In response to our letters we have received 2632 replies up to this date, which we tabulate as follows.

ESTIMATED TOTAL CROP AS COMPARED WITH CROP OF 9,901,000 LAST YEAR.			
Alabama.....	33 %	decrease or	670,000 bales.
Arkansas.....	33 %	"	570,000 "
Florida.....	15 %	"	51,000 "
Georgia.....	27 %	"	949,000 "
Louisiana.....	37 %	"	378,000 "
Mississippi.....	28 %	"	804,000 "
North Carolina.....	34 %	"	307,000 "
South Carolina.....	26 %	"	592,000 "
Tennessee, etc.....	28 %	"	252,000 "
Texas, etc.....	45 %	"	1,802,000 "

Estimated total crop of U. S. .... 6,435,000 bales.

"Weight of bales this season is estimated to be ten or twelve pounds lighter than last year.

"In addition to the injury the crop had previously suffered, the excessive heat during the latter part of August and month of September caused the plant to mature prematurely, to shed its fruit, dry up and lose the top crop.

"By reason of the long continued dry weather, picking is farther advanced than ever before known—in some sections already entirely over—and the crop has been marketed with unusual rapidity.

"Few correspondents report any disposition on the part of planters to hold back their cotton.

"In our letter from which the foregoing crop estimate by counties was requested, as a matter of some interest, we also asked an estimate or guess as to the total crop of the United States, and submit the following:

ESTIMATES OF TOTAL CROP OF UNITED STATES NOW PREVAILING IN THE SOUTHERN STATES.	
Alabama.....	6,650,000 bales.
Arkansas.....	6,560,000 "
Florida.....	6,750,000 "
Georgia.....	6,780,000 "
Louisiana.....	6,510,000 "
Mississippi.....	6,750,000 "
North Carolina.....	6,600,000 "
South Carolina.....	6,790,000 "
Tennessee, etc.....	6,820,000 "
Texas, etc.....	6,500,000 "

Makes total crop of the U. S. .... 6,680,000 bales.

### The Peanut Crop.

A canvass of the principal peanut-growers in North Carolina, Virginia and Tennessee, recently made, elicited the following information:

The present crop is about 65 per cent. of an average one. The yield as reported is rather meagre, and seems to be gradually lessening, possibly attributable in many cases to impoverishment of the land by repeated growing. The question of the relative quality of the nuts this season is a mooted one. Replies lean to the side of good quality for the following reasons: The planting was at least three weeks late, and if the nuts are given the usual length of time for maturity the growth should have extended through September. Instead of this being the case, this month was a disastrous one, owing to the very unusual drought, and the nuts that started during that month came to nothing. In most cases these immature nuts will not be picked off at all, and, though thus reducing the quantity, will improve the quality. The conditions differ in the two States, the crop of North Carolina being better than that in Virginia, the yield and percentage of good quality showing some advantage.

The information from Tennessee is to the effect that the condition of the crop is good, and that it is choicer than for years, but will turn out to be only 50 per cent. of an average. The demand for bags there is less by half than it was last year. This is a good test as to the output of the fall crop. Supplies of old goods in hands of dealers are reported to be less than for a long time.

### Industrial Notes From Roanoke.

[Special Cor. MANUFACTURERS' RECORD.]  
ROANOKE, VA., November 4.

The Roanoke Machine Works' pay-rolls for the month of October amount to \$68,400, within a fraction of being the largest rolls in the history of this institution. The November payments, it is believed, will exceed this amount.

Furnace No. 2, of the Crozer Iron Co., has recently been put in blast, and both furnaces are running with full force.

Repairs to the West End Furnace, which have been in progress for the past six weeks, are about completed, and the furnace will be put in blast about the 15th of the present month.

The American Bridge & Iron Co.'s plant, recently purchased by the Virginia Bridge & Iron Co., is undergoing repairs, and will be started up with a good force in a few days.

The Castle Rock Mining Co., whose property is located just south of this city, is now shipping eight to ten cars of ore daily, with a gradual increase in the output.

The Cloverdale Mining & Farming Co., whose property is located seven miles north of this city, has a large force at work opening up its mines and erecting its plant, and has under construction a branch line of railroad about one mile in length from the main line of the Norfolk & Western, near Cloverdale station, to the point of operation.

The Blue Ridge mines, twelve miles east of this city, which have been idle for a long time, have been leased to the Pulaski Furnace Co., and preparations are under way for their immediate operation. Before the close of the present month nearly 2000 men, who ninety days ago were without work, will be given regular employment in the various industries in and immediately surrounding this city, with every assurance of a continuation of such conditions throughout the winter.

### A Century of Commerce.

The New York Tribune says:

"Time, 'that common old arbitrator' among men and events, is again about to do tardy justice to the memory of a great man. In December there is to be a gathering in this city of leading Americans from all parts of the country to observe the first centennial of American commercial liberty. They will come as representatives of the industries and commerce of the nation to celebrate the completion of the first century of American material progress since England was forced formally to acknowledge the commercial as well as the political independence of her late colonies in a treaty of 'amity, commerce and navigation.' This treaty was the work of that New York patriot and first American chief justice, John Jay, some of whose contemporaries so little appreciated the value of his work that he was being publicly denounced and burned in effigy in some of the leading cities 100 years ago. Clear appreciation of his foresight and patriotism having come with time, the dinner now to be held will honor his memory and recognize his work in that treaty, which not only wrested immeasurable concessions from England, but was the forerunner of a series of commercial treaties with other nations, which occupy the brightest pages in American diplomatic records.

"The dinner will be a distinctly commercial affair, given under the auspices of suc-



successful men of affairs, to celebrate the inception of the industrial growth of this country. The distinguished character of this celebration of the first commercial centennial in American history is indicated by the names of the men interested in its success. Chauncey M. Depew, president of the Empire State Society of the Sons of the American Revolution, is directing the arrangements, and will preside. The speakers will be men of national reputation, and covers will be laid for 300 guests."

Associated with Mr. Depew are 100 leading business men of all shades of political belief, each representing a line of industrial or commercial effort in this country, among others Philip D. Armour, of Chicago; H. C. Clark, of Boston; Charles H. Cramp, of Philadelphia; Jeremiah Dwyer, of Detroit; Eldridge M. Fowler, of Chicago; George W. Gay, of Grand Rapids, Mich.; E. Howard, of Dorchester, Mass.; A. S. Johnson, of Philadelphia; Judge William Lawrence, of Ohio; Senator McMillan, of Detroit; John Moses, of Trenton, N. J.; Captain Frederick Pabst, of Milwaukee; James E. Pepper, of Kentucky; Charles A. Pillsbury, of Minneapolis; Senator Proctor, of Vermont; Richard H. Edmonds, of Baltimore; William Sellers, of Philadelphia; E. C. Simmons, of St. Louis; Chauncey Thomas, of Boston.

#### A Big Cargo.

The British steamship Lord Erne cleared from Brunswick, Ga., on the 1st inst. with one of the largest cargoes that ever left a Southern port. The cargo was shipped by the Brunswick Terminal Co. and consisted of 14,026 bales of cotton, 180 tons of cottonseed, 750 tons of phosphate rock and 10,000 feet of poplar wood, the total value being \$594,142.

THE following shipments of phosphate rock are reported from the port of Fernandina, Fla., for the month of October: 1st, steamship Nymphæ for Stettin, Germany, via Norfolk with 2400 tons; 2d, British steamship City of Truro for Stettin with 2600 tons; 4th, British steamship Osborne for Frederickstadt with 1600 tons; 7th, British steamship Lombard for Stettin with 2750 tons; 8th, schooner Douglass Gregory for Baltimore with 980 tons; 19th, schooner Thomas H. Pollard for Boston with 1000 tons; 25th, British steamship Ineshowen Head for Birkenhead, England, via Brunswick, Ga., with 1200 tons, and British steamship Sydenham for Newcastle-on-Tyne with 2200 tons—total for the month, 14,730 tons.

#### A Hundred-Fold Return.

Mr. W. P. Blasingame, dealer in farm and fruit lands, Fort Valley, Ga., has had an advertisement in the *Southern States* for the last six months. In paying for it and ordering its renewal in double the space, he writes:

It affords me pleasure to pay this, for the outlay has yielded more than a hundred-fold in return. Your magazine surely covers the whole land. As a direct result of my advertisement in it, I have had inquiries from nearly every State in the Union, and a great many especially from the Northwest. It has been the means of bringing several investors and settlers here, for we only need to get people to come and see this country to induce them to invest or settle. The single line in my advertisement stating that I could furnish "gilt-edge" 8 per cent. real estate mortgages has interested several investors, and already, as a result, one man from Massachusetts has come and arranged with me to organize a loan and trust company.

Your magazine has been worth much to me and to this section, and, I believe, a blessing to the whole South. I believe that the *Southern States* is the best friend the South has ever had.

Every town and every property in the South desiring to attract the attention of Northern and Western buyers should advertise in the *Southern States* magazine. It is published by the Manufacturers' Record Publishing Co.

## RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department, on page 231.]

### Cincinnati and the South.

The visit of several prominent officials of the Cincinnati Southern road to Savannah has aroused considerable interest as to its object. The gentlemen in question are President A. E. Ferguson and Henry Mack, John Carlisle and B. R. Smith, of the board of trustees of the Cincinnati Southern Railway. They state that they are interested in a move of Cincinnati business men to extend their trade relations with the South American countries and the new territory being opened up in South Africa, and they look to Savannah as the port through which such commerce must be conducted.

The Southern Railway Co. recently cut off the Cincinnati Southern from one of its important connections to the seaboard by securing control of the Alabama Great Southern line. The Cincinnati Southern hitherto has made New Orleans the seaport terminus for its traffic, but the visit of President Ferguson and his associates seems to indicate that the company has plans for another combination independent of the Southern Company. At present the Louisville & Nashville and the Southern are the only large systems entering Savannah from the Northwest. The extension of the Cincinnati Southern to Savannah by an independent combination of existing lines would be a great factor in the growth of the city.

President Ferguson in an interview states that his recent visit to the Atlanta Exposition and a study of the display of Central American countries has influenced him partly in favor of a steamship line between Savannah and Central America. In further explanation of his visit he said:

"We came to Savannah because when the question was up as to what should be the southern terminus of the Cincinnati Southern Railway, some of our citizens being in favor of Nashville, others in favor of Knoxville, and a majority, at that time, in favor of Chattanooga, the argument and conclusive reason for selecting Chattanooga was that if that city were made the terminus the road would tap the entire Southern railroad system and connect it with the Northern system, there being at that time 4000 miles of railroad converging at Chattanooga and 6000 at Cincinnati. By making the terminus at Chattanooga we not only secured this connection, but also a direct route to Savannah, which was considered to be the port from which direct commerce by sea could be had with South America.

"The trustees of the Cincinnati Southern Railway, knowing that the object of selecting Chattanooga as the terminus of the road was not only to tap the Southern system of railways, but to have this direct connection with the South Atlantic seaboard, have called a consultation in Cincinnati of the heads of the various commercial and industrial bodies of Cincinnati and railroad interests centering there as well, to lay before them the facts above stated, so that they may, through representatives of their respective organizations, bring the attention of Congress and the administration to the importance of providing a line of mail and passenger steamers to these Southern ports."

Mr. Ferguson's idea is that the vessels for this service should be of the swift cruiser class, which in time of war could be converted into armed cruisers for scouring the seas and destroying an enemy's commerce. The government has already enacted legislation favoring the construction of such vessels. He believes that if the vessels constructed for the mail and passenger service of the new line should

be of this class, subsidies could be obtained to guarantee the success of the enterprise.

### CHARLESTON TO THE WEST.

Stock Subscribed to a Company to Build a Railway.

The scheme to build a railroad to give Charleston, S. C., a connection with the West by reaching some line in Tennessee has made such progress that the MANUFACTURERS' RECORD is reliably informed that the road may be built in the near future. Some time ago several prominent citizens of Charleston, among them Mr. F. W. Wagener, of the firm of F. W. Wagener & Co., planned a company with \$200,000 capital, to be called the Security Construction Co., to promote the enterprise. Mr. Wagener advises the MANUFACTURERS' RECORD as follows:

"The construction company has been organized here with \$200,000 subscribed, and it is intended to build a line of railroad to connect this city with the West. The route will very probably be via Knoxville, but the directors have not yet positively decided as to whether it is best to go via Macon or Knoxville. We expect our terminals to consist of many acres on the Ashley and Cooper rivers, which are to be donated by the city. We positively expect this scheme to be under headway soon."

The enterprise is of great importance to this section of the South, and will greatly increase the importance of Charleston as a railroad centre and as an export point.

### Cape Fear & Yadkin Valley.

The committee to reorganize the Cape Fear & Yadkin Valley road has perfected a plan which will be offered the stock and bondholders for approval. The present debt consists of \$3,054,000 6 per cent. bonds, \$485,600 overdue coupons, \$203,000 due to the North State Improvement Co., \$1,868,700 general mortgage 6 per cent. bonds and \$1,972,900 common stock, a total of \$7,584,200. By the new plan the following securities will be substituted: The new debt will be \$500,000 prior lien 4½ per cent. bonds, \$3,400,000 general mortgage ½ per cent. bonds, \$1,700,000 preferred stock, \$600,000 second preferred stock and \$900,000 common stock, a total of \$7,100,000. Under the old debt the total interest charges per year are \$183,240; under the new they would be \$158,500. The net earnings for the year ended September 30, 1895, were \$95,200 on gross earnings of \$495,800. The proposed interest charges for 1896 in the plan are \$95,055. The committee believes that the net earnings next year will be at least \$15,000 in excess of those charges.

The Cape Fear & Yadkin Valley, which extends from Wilmington to Mount Airy, N. C., passes through one of the best sections of North Carolina. It is attracting considerable attention at present from the fact that it would prove a valuable feeder to the Baltimore & Ohio system in case that company extends its line to Roanoke, Va., and connects with the Roanoke & Southern road, as may be done. The Roanoke & Southern connects with the main portion of the Cape Fear system.

### A Large Cotton Carrier.

One of the largest vessels ever placed in the cotton trade between this country and Europe is the American, recently launched in Belfast and now en route to New Orleans. Her total cubic capacity is 587,220 feet, making her easily the biggest ship ever coming to New Orleans. She is 8200 gross tonnage, 475 feet long between perpendiculars, fifty-five feet beam, and depth of hold thirty-nine feet six inches. There are nine engines on her, and she is loaded through six hatches. Her water ballast is 1500 tons. She can carry 24,000 bales of cotton.

### A SOUTHWESTERN AIR LINE.

Advantages of the St. Louis, Siloam & Southern and the Country It Will Traverse.

The company which is promoting the St. Louis, Siloam & Southern road is making much progress with its enterprise. One important step has been to consolidate the Arkansas and Missouri companies bearing this title into one corporation, while a dispatch from Fort Smith states that the company projecting the Gainesville, McAlester & St. Louis line has made arrangements to combine its interests with the other.

The St. Louis, Siloam & Southern is one of the most important railroad projects ever conceived in the Southwest, and there are many sound arguments as to why it should be constructed. The route proposed is about 300 miles long. Fort Smith, on the border of Arkansas, is one of the terminal points. From Fort Smith the line would extend northeast through Northern Arkansas and Southern and Eastern Missouri to St. Louis. With the Gainesville, McAlester & St. Louis road completed and annexed, a system would be formed reaching from St. Louis into the heart of the Southwest, crossing Missouri, Arkansas, Indian Territory and a part of Texas, the total length being about 650 miles. It would be by far the shortest route between St. Louis and the Southwest, and, joining the Texas & Pacific at Gainesville, trains could be hauled directly to the principal cities of the State. It is claimed that the road from Fort Smith to St. Louis would be 100 miles shorter than any other between the Southwest and the East; if completed to McAlester it would be 200 miles shorter, while the entire system would be nearly 300 miles shorter. This in itself is a strong argument, but it is only one of several.

The country to be traversed by the road is almost destitute of transportation facilities. A glance at a railroad map shows that it would be the sole outlet for large sections of Missouri and Arkansas, and these sections embrace some of the largest and most valuable areas of mineral and timber lands in this country, which cannot be properly developed until such a line is built. Careful surveys by experts have established the fact that the territory to be traversed by this road—the counties of Ozark, in Missouri, and Baxter, Marion and Boone, in Arkansas—contain some of the finest and most extensive forests of pine, cedar, walnut, hickory, oak and ash on this continent. It is estimated that the amount of short-leaved pine alone standing in these counties is over 40,000,000,000 feet, board measure, and this estimate does not include trees below fifteen inches in diameter, and ignores the fact that in Arkansas pine largely replaces pine, which insures a continuous supply. In these counties also grow many of the largest hardwood trees yet discovered in the world, such as walnut, oak, hickory and ash, and of the finest known quality. While a few tramroads have been built by private corporations to haul this timber out, so little has as yet been done to secure the wood in this particular locality that it may be practically termed untouched as yet.

The minerals of Arkansas and Southern Missouri have been famous for years on account of their extent and quality, but the reputation of this region has been greatly increased by geological reports showing abundance of coal, iron and manganese ores, zinc, copper, marble, granite, onyx, limestone, lithograph stone, soapstone and aluminum ore. Ex Governor Hughes estimates that there are 12,000 square miles of coalfields alone in which mining operations are carried on in only a few localities. Zinc has, perhaps, become the most noted mineral in Arkansas. State Geologist Branner claims that the deposits of this ore underlie 216 square miles alone. Much of



it is theoretically pure. This lies in Marion, Boone, Newton and other counties, and the survey of the St. Louis, Siloam & Southern passes through the centre of the field. Around it are beds of fine marble comprising 2200 square miles of surface. This marble is reported as being of the finest quality in pink and black tints.

At Fort Smith the line would penetrate the centre of the coal region now being worked in Arkansas. San Sebastian county, in which Fort Smith is located, produces 83 per cent. of the coal mined in the State. The Kansas & Texas Coal Co. and the Western Coal & Mining Co., both of St. Louis, are the principal operators, the former shipping its product from Fort Smith to St. Louis over the St. Louis & San Francisco Railroad, a distance of 416 miles; the other shipping its product via Fort Smith over the St. Louis & Iron Mountain to St. Louis, a distance of 511 miles, while the distance from Fort Smith to St. Louis over this line will not exceed 300 miles—a saving of 211 miles over one and 116 miles over the other line. The first-named coal company has a possible capacity of 500 carloads a day when operating full force. Most of this coal would, it is thought, naturally be shipped to St. Louis over the new route, it being so much shorter. But in addition to being a coal-shipping point, Fort Smith is rapidly becoming one of the principal railroad centres of the West. It is located on the St. Louis & San Francisco, the Arkansas Valley, the Little Rock & Fort Smith and the Iron Mountain systems. It ships 65,000 bales of cotton annually from adjacent territory, in addition to other staples and live-stock. Being the shortest route from Fort Smith to St. Louis, the projected road would secure much of the traffic of the lines entering Fort Smith from the West and South.

The counties in Arkansas, as well as those in Missouri, through which this road will be constructed, are considered among the best fruit sections in America. This is known as "The Land of the Big Red Apple." In fact, the fertility of the soil and the admirable climate have attracted such attention that already the State is securing its share of immigrants. Southern Missouri also is becoming rapidly settled with Northern and Western farmers who have become acquainted with the advantages it offers. One of the best evidences of the success of fruit-growers here is shown at Pomona, Mo., where is located a fine fruit farm, which, it is said, yields President Mackay, of the company, as much as \$500 per acre in some years.

The men identified with this enterprise are of high standing, and several of them are well-known capitalists. Mr. H. D. Mackay, of Pomona, Mo., the president, is, as already stated, an extensive fruit-grower and land-owner. He was formerly attorney for a prominent trust company in New York; afterwards largely interested in railroad and mining matters in Mexico and the West. For some years he has given his attention to the development of an 800-acre fruit farm, but the opportunity and the need for such a road as this were so great that he has taken hold of it. Ex-Governor W. M. Fishback, of Fort Smith, one of the directors, is widely known for his very active work when governor in aiding the industrial development of the State. Several St. Louis people, including W. J. and W. E. Kreybill, T. J. Partis and George W. Parker, are in the directory also.

#### A Rumor Denied.

The report that Mr. J. C. Clarke, president of the Mobile & Ohio Railway Co., has resigned his position is denied by Mr. Clarke in a personal letter. Under his management the Mobile & Ohio has increased its passenger and freight traffic, and his resignation would deprive the company of a most valuable officer.

#### Another Line Reorganized.

A dispatch from Albany, Ga., announces that the Albany, Florida & Northern, extending from Albany to Cordele, Ga., thirty-five miles, has been reorganized by the bondholders who recently purchased it, and the following officers elected: T. Edward Hambleton, of Baltimore, president, and J. S. Crews, of Albany, general manager; S. B. Brown, Morris Mayer, T. M. Carter, Morris Wessolowsky, S. R. Wester, Albany; T. Edward Hambleton and Frank Hambleton, of Baltimore; H. P. Talmadge, of New York, and L. S. Bent, of Philadelphia, directors. The general headquarters of the company will be in Albany. The road has been operated by the Savannah, Americus & Montgomery (Georgia & Alabama) under lease. It is reported that it may be extended to Bainbridge, Ga.

#### A Deserved Tribute.

The celebration of Plant Day and the ovation given Prest. H. B. Plant, of the Plant Railway & Steamship Co., at the Atlanta Exposition was a tribute to a man than whom no other has done more to develop the South. A Northerner by birth, Mr. Plant invested his money in the South, and by judicious and wise management has accumulated a vast fortune, and today is the head of a system of steamship lines, railroads and express lines unsurpassed in the South for excellence both in the public service they render and as profitable investments. The South needs more men like H. B. Plant.—Birmingham News.

#### A Generous Offer.

Another railway company which appreciates the object-lesson to be taught by the Atlanta Exposition is the Seaboard Air Line. Mr. E. St. John, the vice-president, has issued the following circular:

Vast problems which have been uppermost in the minds of citizens of the United States and other countries, and which are constantly finding their solution in almost everything pertaining to agriculture, manufacture, electricity, fine arts, transportation, etc., are well illustrated at the Cotton States and International Exposition in the city of Atlanta, Ga. Recognizing that this exposition must result in great good, it being in every sense a vast educational institution, and desiring that the employees of the Seaboard Air Line shall reap that benefit, which should prove profitable alike to themselves and the company which they serve, we beg to advise that all who have been in the service of the Seaboard Air Line for a period of three months or more will be furnished with free transportation to Atlanta and return upon application therefor to their superior officers, and when accompanied by a statement from such officer that such party or parties can be spared from duty without detriment to the company's interests. Such request for free transportation may include the wife and dependent members of the immediate family of the employee. We appreciate that no large number can be spared at any one time, but during the continuance of the exposition many may avail themselves of this opportunity, and the more that are able to do so the better. Applications to your immediate superiors should be made early, and they will receive the best possible consideration."

#### To Help the Exposition.

The Georgia Railroad Co. has sent out circulars to its agents, urging them to contradict any statements they may hear that exorbitant rates are being charged for rooms and board to visitors to the Atlanta Exposition. This plan will do much to increase the attendance.

#### Railroad Notes.

Mr. T. C. TIPTON has been appointed commercial agent of the Knoxville, Cum-

berland Gap & Louisville Railroad Co. at Middlesborough, Ky.

Mr. C. W. CREIL has been appointed traveling passenger agent for the Southern Railway Co., with office at Richmond, Va.

The first vessel of the steamship line being operated by the Louisville & Nashville Company between Pensacola, Fla., and Europe has cleared from Pensacola with a cargo of cotton, flour and tobacco.

The Savannah & Atlantic road, extending from Savannah, eighteen miles, to the Atlantic ocean, has been sold to the committee of reorganization of the Central of Georgia Railway Co.

The New Orleans Bureau of Freight and Transportation has elected the following officers: I. H. Stauffer, Jr., president; D. M. Kilpatrick, vice-president; A. Baldwin, Jr., second vice president; George M. Leahy, secretary, and Joseph Kohn, treasurer.

R. L. NEWTON has been appointed traveling passenger agent of the Alabama Great Southern, with headquarters in Birmingham, to succeed O. L. Mitchell, who was recently promoted to the office of division passenger agent, with headquarters in Chattanooga.

MESSRS. WILLIAM JOHNSTON & Co. will add a new vessel to the Johnston Line between Baltimore and Liverpool. She has just been launched, and is called the Vedamore. She is 450 feet in length and forty-eight feet in breadth, and has a gross tonnage of about 6300. The spar deck will be fitted for cattle.

A MONTGOMERY (ALA.) dispatch states that a decree of sale has been granted in the case of the Metropolitan Trust Co. of New York vs. the Montgomery, Tuscaloosa & St. Louis Railway Co. The decree allows the railway corporation thirty days in which to pay the \$180,000 past-due interest, but if not paid by that time the property will be advertised and sold.

THE Southern Pacific Railroad Co. has just issued a book entitled "Through Story-Land to Sunset Seas," for public distribution. It is one of the handsomest works of the kind ever published by a railroad company, and comprises 250 pages printed on heavy book paper and richly illustrated. The attractions of the Southern Pacific road from New Orleans to the Pacific coast are detailed and depicted, and the work will doubtless prove an incentive to many travellers to cross the continent by this line.

#### To Promote Immigration.

The movement to increase the trade between the South and West, which is now being called the "Chicago and Southern States" movement, has resulted in the formation of what is termed the Southern and Southwestern Industrial Association, with headquarters at Birmingham, Ala. Mr. W. H. Skaggs is president; Mr. Eugene F. Enslen is chairman of the financial committee; Mr. J. F. B. Jackson, vice-president, and Mr. L. A. May, secretary and treasurer. A branch office is to be established in Chicago, and the association will work in the interest of immigration and trade. THE MANUFACTURERS' RECORD trusts that it may meet with the success which all legitimate enterprises of this kind merit.

#### Foreign Immigrants to the South.

An indication of the interest which the South is attracting from immigrants from Europe is the arrival of a shipload at New Orleans. The vessel is the Elysia, from Palermo, Italy, and she carried 439 passengers, all of whom intend locating in the South. Three of them will go to Mississippi, two to Texas, and the balance will remain in Louisiana. They will work on plantations.

## FINANCIAL NEWS.

#### Chance to Start a Bank.

A dispatch from Fitzgerald, Ga., the site of the colony of Northwestern people in Wilcox county, states that an excellent opportunity is offered investors to open a bank at that point. Already nearly 1000 people have settled in the town. Hon. W. J. Northen, at Atlanta, will give information.

#### New Corporations.

Gordon Dubose has opened a banking-house at Calera, Ala., with R. E. Bowden as cashier.

The Mutual Fire Insurance Co. has been organized at Lovington, Va., with W. C. Fitzpatrick as president, and M. K. Estes, treasurer.

The Equitable Insurance Co. has been formed at Wheeling, W. Va., with the following officers: President, John P. Jones, Terra Alta; vice-president, W. R. Taylor, Wheeling; secretary, Hugh Sterling, Wheeling. The following directors were chosen as the executive board: W. R. Taylor, C. Menkemeller, John Roemer, J. W. Ewing, J. B. Garden, Leonard Eskey, and Hugh Sterling, of Wheeling.

#### New Securities.

The city of Thomasville, Ga., may issue \$35,000 in bonds for improvements. Address the mayor.

The city of Carrollton, Ga., will vote on the question of issuing \$20,000 in school bonds. Address the mayor.

The city of Rome, Ga., has been authorized to issue bonds to fund its indebtedness. The mayor may be addressed.

The Augusta (Ga.) Factory Co. has issued \$200,000 in 6 per cent. bonds to run twenty years. C. C. Goodrich is appointed trustee of the issue.

The City of Galveston, Texas, is about to refund its floating debt, and will issue \$200,000 in bonds for that purpose. A. Ferrier is chairman of the finance committee.

#### Interest and Dividends.

The Baltimore & Ohio Railroad Co. will pay a 5 per cent. dividend from the earnings of its Washington branch for the six months ending September 30.

#### Money in Meat-Packing.

The value of meat-packing in the South has been so fully discussed in previous issues of the MANUFACTURERS' RECORD that Southern people have acquired a very intelligent idea of the importance of this industry. One of the recent companies to engage in it is the Birmingham (Ala.) Packing Co., which has just begun operating an extensive plant. The building is 120x130 feet and two stories high, and contains an iceroom, boiler-house, fertilizer-room, sausage-room, sausage store-house, slaughter-house, refrigerating rooms, etc. An ice machine of eight tons per day furnishes the necessary ice; also cold air for storage. All products of the livestock killed will be utilized, and the indications are that the Birmingham Company will have all the business which it can attend to.

The Valdosta (Ga.) Ice & Pork Packing Co. has a plant at that city, and has already met with considerable success. The company finds, however, that it is hard to secure enough livestock, especially hogs, to keep the plant in full operation. This shows how valuable meat-packing in the South is to farmers who desire to diversify their work by raising beeves and hogs. As we have stated before, a score of places could be mentioned where this industry could be conducted profitably, while at the same time it would greatly stimulate the raising of livestock, and be thus a direct benefit to Southern meat consumers, as well as a direct benefit to the farmers.



## COTTONSEED OIL.

This department is open for the full and free discussion of trade topics and practical questions, and contributions are invited from men who are identified with this industry. Items of news are always acceptable.

## A Contrast.

[Extracts from N. Y. Journal of Commerce, October 28.]

Sensational reports of hog cholera keep coming in from "Illinois farmers" on the Chicago Board of Trade, who are presumably longer of products than they are of hogs, and they say "the hogs are all gone on their farms," which doubtless is true.

Out of two cars hogs from Chicago received here yesterday twenty-eight were dead and twenty more were condemned by the health authorities to be tanked. Hence Chicago arrivals are at a discount, as they come from the hog-cholera districts in Illinois and Iowa, while St. Louis and Buffalo hogs are running healthy.

Mr. Anderson Fowler, when asked about the hog cholera reports, some of which were very sensational in letters received from Chicago, said: There has been more cholera than usual this fall in two States only, Illinois and Iowa, but the worst was two weeks ago, since when cold weather has stopped the disease, and there will be no more trouble from it, except perhaps the earlier marketing of hogs from those sections, as indicated by the big receipts at Chicago tomorrow, which are mostly from Illinois. But, said he, they raise a crop every month, and it will not materially affect the hog supply.

Contrast these reports, indicating the character of some of the hog product of the West, with the absolute purity, cleanliness and healthfulness of cottonseed oil—a pure vegetable product untainted by any possible impurities, such as are always to be found to some extent in animal fats.

## The Market for Cottonseed Products.

NEW YORK, November 5.

Increasing quantities of crude oil are arriving, while the position of the market is not materially changed. A slightly improved demand for export is perceptible, but the outlook for substantially increased trading in that direction, with perhaps one exception, would appear, at least for the immediate future, of an unpromising character. Tank crude, Texas and nearer coast sections, is now offered freely at a figure slightly below quotations of previous week, thus exhibiting symptoms of weakness. The demand from lard refiners is unusually slow, while that from other consuming lines is of a similar character. The stand taken by purchasers generally, if prolonged during the current month, would indicate lower values; otherwise, failure to release oil stocks will result in accumulations, which would prove highly inconvenient, if not impracticable, to not a few of the mills. Trading at the moment is of a jobbing character, the lower-priced old oil being selected preferably to the new. The exception referred to in the export line consists in the marked improvement in cotton-oil consumption in Holland, and while the supplies from this source have not materially increased, continued depletion of old stocks will result in imparting activity to outward shipments. It is rumored that several large sales have already been effected at the close of the preceding week, destined for the Dutch market. Butter oil is a scarce commodity in Holland, while the demand for butterine is increasing. Inferior oil, of which a large consignment recently reached Rotterdam, is rapidly taken up by soapmakers. Chicago quotation for January lard is yet on a low basis—5 67 cents. Seed is still difficult to procure in adequate supplies for continuous mill operations, yet everything points to the conclusion that the oil output will be ample to meet the curtailed demand. Prime old summer yellow is offered at 27½ cents,

the arrivals of new yellow being limited. Liverpool refined oil has dropped from 17s. 9d. to 17s. 3d., at which figure Southern Italy is securing moderate supplies, the trend of the market in Hull and London favoring buyers. Prices current are as follows: Prime crude, 24 to 25 cents; prime crude loose at mills, 18 to 19 cents; yellow butter grades, 30 to 31 cents; prime summer yellow, 28 cents; off grade summer yellow, 27 to 27½ cents; prime summer white, 31 to 32 cents. Sales for the week include 1110 barrels of new crude at prices ranging from 23 to 24½ cents; 600 barrels new summer yellow, strictly prime, 28 cents; 350 barrels old summer yellow, 27½ cents; 350 barrels good off-grade yellow, 27 to 27½ cents, and four tanks crude at 18½ cents. The heaviest consignments to a single destination were represented in 52,000 gallons to Trieste, while shipments to South American and West India ports aggregate 29,750 gallons.

Cake and Meal.—A good demand obtains for these feeding products in Great Britain and Europe. The prospect for a rapid consumption of this season's output is promising, large contracts having been placed in a number of instances, while heavy shipments are proceeding apace. Owing to the increased demand which is now certain will obtain for all varieties of fertilizers among cotton and tobacco cultivators, a sure outlet for meal presents itself as a fertilizing material should competing products abroad reduce the prospective consumption. New Orleans quotations, \$17 per ton for cake or meal, while per ton of 2000 pounds of seed \$8 is the established figure.

## Cottonseed-Oil Notes.

THE collector of customs of the port of Galveston, Texas, reports the shipments of cottonseed products for the month of October as follows: Cottonseed oilcake, 38,080 sacks; cottonseed meal, 227,086 sacks, and cottonseed oil, 2200 barrels.

THE Athens oil mills, fertilizer plant and ice works, at Athens, Ga., have been sold to Mr. George Lyndon, of Washington, Ga. The property, it is stated, was sold by the receiver, Mr. R. S. Howard, and approved by Judge N. L. Hutchins. Mr. Lyndon will at once set these plants in operation.

THE steamship Ramazan sailed from Galveston, Texas, for Hamburg on the 1st inst., crossing the bar drawing twenty feet of water. Her cargo consisted of 72,777 sacks of cottonseed meal, 197 sacks of cottonseed oilcake and 492 bales of cotton, a total dead weight of 3680 tons. She will call at Norfolk, Va., for coal.

THE Farmers' Association at a recent meeting in Pine Bluff, Ark., adopted the following resolution on the question of selling cottonseed at \$5 per ton: "That, owing to the very short crop of cotton grown this season, which in our estimation will not exceed 6,500,000 bales, and with the consequent shortage of the seed product, we believe the present price for the same is too low, and we advise the members of this association and other holders of cottonseed to be slow in marketing the same, as we feel confident this course will greatly enhance its value."

THE local market at Houston, Texas, last week was inactive for cottonseed products, buyers and sellers being still apart in their views. There were no special changes to note, except in prime crude oil, buyers having withdrawn from the market at 20 cents, and what few sales were made were at 19 cents, which is about the only bidding price, while most holders continue to ask 20 cents. Meal and cake were about the same, \$11 to \$12 at mill, according to location of freight rate to seaboard points. The following quotations were posted on the 30th ult. by the cotton seed product departments of the Houston Cotton Ex-

change and Board of Trade: Strictly prime crude oil, 19 to 20 cents; prime crude oil, 19 cents; prime summer yellow oil, 21 to 22 cents; prime cottonseed cake and meal, \$11 to \$12; cottonseed hulls, \$2 50 to \$3; linters, A, Houston delivery and classification, 4 cents per pound.

THE market in New Orleans for cottonseed products is moderately active, with prices unchanged. The following are receivers' prices: Cottonseed, \$8 per ton of 2000 pounds net to the mills, no commission of any kind to be added; cottonseed meal jobbing at depot, \$14 50 to \$14 75 per short ton of 2000 pounds; for export per long ton of 2240 pounds f. o. b., \$16 50 to \$17 for current month; oilcake for export, \$16 50 to \$17 per long ton f. o. b.; crude cottonseed oil at wholesale or for shipment for September or October delivery, strictly prime crude in barrels per gallon, 20 to 20½ cents; loose per gallon, 17½ to 18 cents; refined cottonseed oil, prime in barrels per gallon, at wholesale or for shipment, 25 to 25½ cents; cottonseed hulls delivered per 100 pounds, according to location of mill, 15 to 20 cents; foots, 1½ to 2 cents; linters—A, 3½ to 3½ cents; B, 3½ to 3¼ cents; C, 2½ to 2¼ cents, according to style and staple; ashes, none.

## Immigration Southward.

The people of Georgia and Alabama are forging ahead in the efforts to promote immigration and the investment of capital into their respective States. The Atlanta Exposition has proven a grand success, and while the benefits accruing therefrom will very properly be largely felt in the promotion of the interests of the Empire State of the South, the other States of this section cannot fail also to receive large accessions to their wealth and population from the same source.

The emigration of farmers from the Northwest to the South has commenced in earnest, and its importance is fully realized by the States first mentioned. Settlers, singly and in colonies, have already located there, and all the indications are that these are but the pioneers of an extensive migration. Visitors to the exposition from the colder regions of the United States and from foreign countries cannot fail to be struck with the advantages of climate offered, and this, in connection with the fertile soil, the great but undeveloped mineral resources, the extensive forests, numerous navigable rivers and the enlightened and hospitable people, make the claims of the South absolutely irresistible to those in search of homes.

Heretofore all attention has been directed to the West and Northwest, but nearly all the available land has been taken up by settlers or is in the hands of railroad corporations, while the droughts of summer and the blizzards of winter have discouraged those already there. They are looking elsewhere for homes after dreary winters of suffering and long dry summers of discontent, and see in the South a land of promise and beauty.—Roanoke (Va.) Times.

## How to Attract Northern and Western Investors and Land Buyers.

Messrs. Pannill Bros., real-estate dealers, Norfolk, Va., writing about the outlook of real estate in that section, say:

"We have within the past two years made quite an outlay in advertising, and we can truthfully say that the *Southern States* magazine exceeds by far anything we have ever tried. In fact, so far as we can learn, it is the only medium that has ever brought us any returns. We have now under advisement several matters brought about through answers to our advertisement in your paper, any one of which will pay us many times over the cost of the advertisement."

## TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department, on page 230.]

## A \$200,000 Mill at Atlanta.

The Piedmont Cotton Mill will be organized at Atlanta, Ga., with a capital stock of \$200,000. The plan of organizing is to raise the capital on monthly instalments, a plan which has been a great success with some Southern mills. Mr. R. U. Hardman will be the president.

## Textile Notes.

THE Augusta Factory, of Augusta, Ga., will spend \$75,000 on improvements. Bonds have been issued for the amount.

MESSRS. DAVID & R. T. TRAINER, of Chester, Pa., are said to contemplate building a \$200,000 cotton mill at Rome, Ga.

GEN. WM. HENRY, of Jackson, Miss., has a proposition from Eastern capitalists for the erection of a \$200,000 cotton mill.

MR. DAVID TRAINER, of Chester, Pa., is at Rome, Ga., with the view to the organization of a \$300,000 company to erect a cotton mill.

THE new Golden Belt Hosiery Co., at Raleigh, N. C., is now installing its machinery. The finest grades of hosiery will be produced.

THE Cherry Cotton Mills, of Florence, Ala., will build an additional mill next year. Mr. C. E. Cowarden will prepare plans for the buildings.

It is said that another cotton mill will be built at Fayetteville, N. C., by one of the Holt family, well known in Southern cotton-manufacturing circles.

MR. WILEY CLIFTON has completed his contract for building a dam to generate water-power, and a cotton mill will be erected at the site, near Raleigh, N. C.

MR. L. W. HOLT will erect a \$200,000 cotton mill at Fayetteville, N. C., and has already contracted for 500,000 brick to be used for the buildings. There is also some talk of erecting a bleachery.

EASTERN investors have made a proposition by Capt. C. E. Wright for the erection of a cotton mill at Vicksburg, Miss. A subscription of \$50,000 worth of stock is demanded, and a committee is now endeavoring to secure same.

THE Meridian Cotton Mills, Meridian, Miss., has formally organized by electing Levi Rothenberg, president; L. Cohen, of Cottondale, Ala., vice-president, and W. A. Brown, secretary. Contracts for erection of buildings will be awarded in the near future.

THE stockholders of the Eufaula Cotton Mills, of Eufaula, Ala., will hold a meeting on the 19th inst. and vote on an increase of capital from \$150,000 to \$300,000. If the increase is decided on the money will be expended on the erection of an additional mill to be equipped with 11,000 spindles and 350 looms.

THE new Douglasville Cotton Mill, at Douglasville, Ga., will be equipped with 4000 spindles, instead of 2600 as at first intended, and fine hosiery yarns will be made. The company will also put in 100 knitting machines. Mr. Simon Baer, late of Cincinnati, now removing to Atlanta, is the leading stockholder in this concern.

A WESTERN correspondent of the MANUFACTURERS' RECORD, says: "I wish a list of yarn mills, spinning a common grade, located in the South; the nearer to this point the better will be the freight rates. My clients now use 7000 pounds a week, and within two years will use 15,000 to 20,000 pounds. We wish to deal directly with the manufacturers." Letters can be addressed to "Western," care MANUFACTURERS' RECORD.







## MECHANICAL.

## Modern Sanitation Methods.

The problem of sanitation is one to which the best efforts of many scientists are being devoted. Substantial support from wide-awake citizens is rapidly making the serious import of this question better understood by the people. Preventative methods as developed by scientific research and practical application have been fruitful of such valuable results as to receive a

accomplish it, especially if the bacteria were in the spore state.

Moist heat was found to possess bactericidal properties to a high degree either at a temperature of 100° C. (212° F.) to 120° C. (248° F.) It, however, remained for Esmarch and Dunker to demonstrate the manner in which the moist heat acts the best.

It was demonstrated that articles subjected to steam disinfection were best acted on when the steam of low degree and under a diminished pressure was caused to pass

losing sight of the damage to the articles exposed, which would make it in operation "very expensive." The steam chamber was made of single thickness only, into which the steam, very saturated with entrained water, was admitted at the lowest temperatures, the condensation of which caused all articles to become wet and badly damaged if not destroyed.

The earlier American apparatus sought to overcome this by the use of steam pipes within the chamber, through which the steam circulated and raised the temper-

to dry the goods exposed. These jackets, being filled with steam during the entire operation, make the chambers drying ovens, so that the articles to be disinfected are brought to temperature before the admission of steam to the inner chamber, and are thoroughly dried, if at all moist, after the steam has been exhausted.

As has been noted, hot air alone will not kill the bacteria, except at high temperature, say 160° C. (320° F.), and after long exposure. To obviate the possibility of air-pocketing in the chamber, or

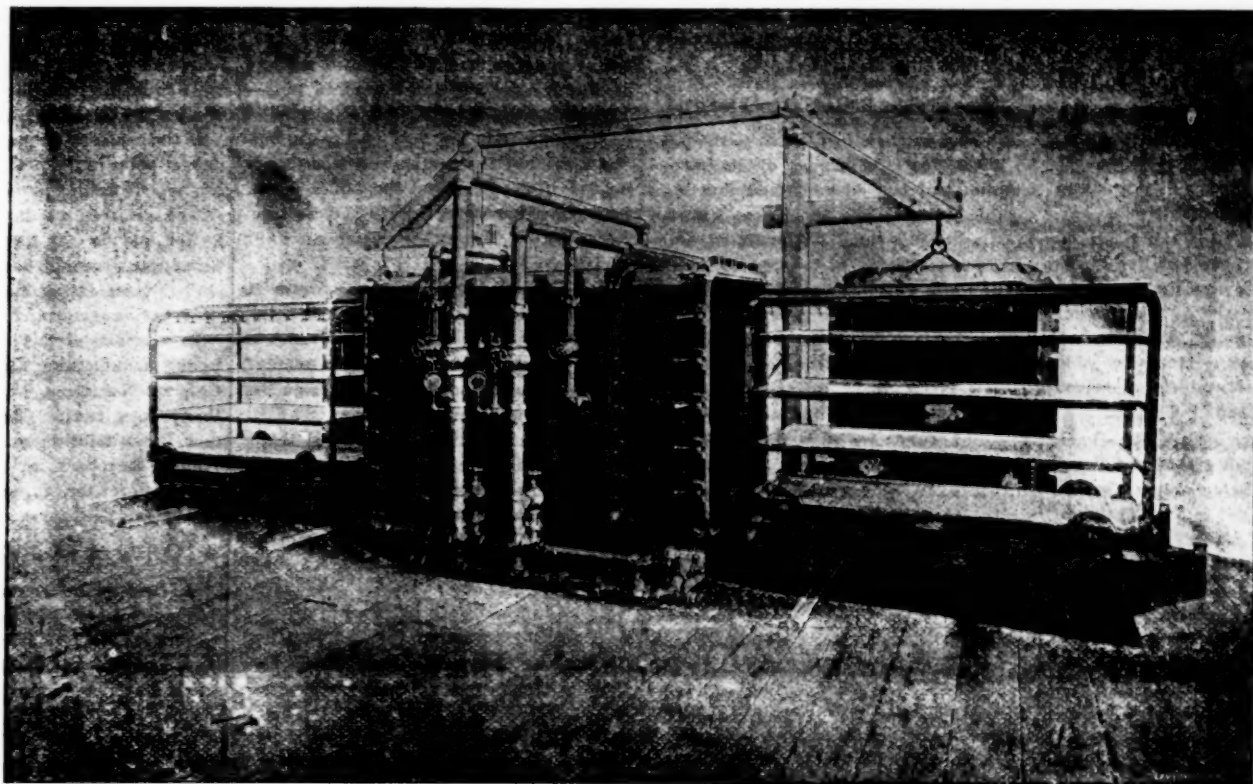


FIG. 1.—KINYOUN-FRANCIS STEAM DISINFECTING PLANT.

more general attention. The dangerous policy of delaying the adoption of such means until the appearance of an epidemic is being rapidly dispelled by the advance in public feeling in this direction. No progressive community can afford to lay aside the consideration of this question. It has been reduced to a practicable solution by introduction of apparatus and equipment for disposing of the elements of danger. Within the means of every Commonwealth these methods are available.

over the articles in a slow current.

With these general facts before him, the mechanic "who handles the lever that moves the world," since every advance in science, art or civilization calls for his aid, was called upon to design apparatus to accomplish the results desired. The German and French mechanic have designed various apparatus, and were in the field in advance of their American brother. It is a characteristic of the American mechanic to lay aside all traditions and move in the straight-

ature previous to the admission of steam.

Rapid progress has been made, however, by American ingenuity in this direction. The accompanying illustrations present the perfection reached. This apparatus is the joint production of Dr. J. J. Kinyoun, the able bacteriologist of the United States Marine Hospital service, and Francis Bros., the well-known Philadelphia machinery builders. It has successfully overcome objections and proven suitable for ship disinfection at quarantine stations,

even permitting a mixture of air and steam to remain during exposure, an air pump is attached to the system of piping, whereby a vacuum of fifteen to twenty inches is produced in the chamber after the articles have been placed therein and before the admission of steam. This also gives the steam a greater penetration, especially in the case where goods are closely packed.

The system of steam piping on chamber has been so arranged as to give perfect control, permitting the steam to be admitted

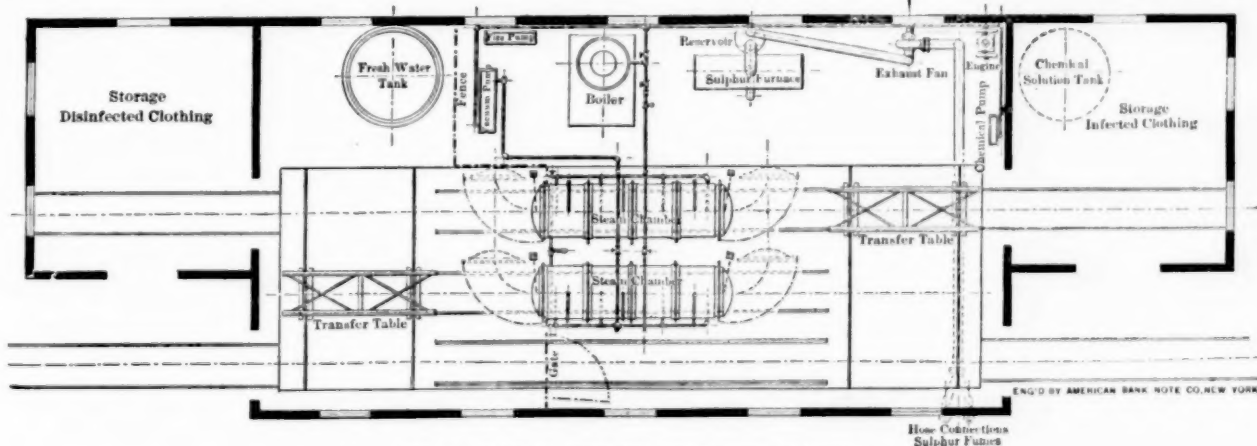


FIG. 2.—PLAN OF COMPLETE QUARANTINE STATION.

Since the great discovery of Pasteur and his pupils of the germ theory of disease, perfected by Koch, much attention has been directed towards the destruction of those bacteria associated with disease, and more especially since 1883, when Koch, Gaffky, Loeffler and others made an exhaustive inquiry into the subject of sterilizing materials by the aid of heat.

Dry heat had its value in killing the bacteria, but it required a long exposure and a high temperature, 160° C. (320° F.), to

est line towards the object to be accomplished, and untampered to strive for results, and from this faculty many ingenious American machines owe their birth.

The province of the mechanic is not to pass upon or discuss the theory upon which modern disinfecting machinery is based, but to apply practically for every day use the facts which bacteriologists and sanitarians have proved to be true.

The earlier German and French apparatus were designed with a view to producing machinery whose first cost would be small,

hospital service and portable or municipal service.

The chambers are made rectangular to give the most effective space during exposure, with little loss of steam, and enables cars on tracks to be readily handled in and out. They are constructed of an inner and outer steel shell, with a steam space or jacket between with cast-iron end-frames, to which steam-tight doors are fastened by steel eye-bolts at each end. This jacket gives perfect circulation and distribution of heat to prevent rapid condensation and

from the jacket to the inner chamber through one or several openings on the top, discharging through the bottom, or entering at the bottom and discharging through the top. Cross currents can also be produced by admission through one opening at one end on the top and discharged at the opposite end on bottom, or vice versa.

The incoming steam strikes upon a three-leaf hood, and is prevented from being forced directly upon the goods exposed, and any condensation is carried down the sides of chamber, preventing



wetting and consequent shrinkage of woollens. The steam is generated in boiler at high pressure, and by means of a reducing valve is used at whatever lower pressure is desired, ten pounds, or 240° F., having been found ample for all cases. The boiler chamber and pipes, being covered by a non-conducting material, prevent condensation and give great economy in working.

The chamber is provided with thermometers, pressure and vacuum gages and a safety valve to prevent over-straining. For convenience of handling the goods cars are provided of light wrought-iron construction with removable trays covered with galvanized screens, and have a series of bronze wardrobe hooks in the top, permitting the articles to be laid upon the trays, or, in the case of finer clothing to be hung upon the hooks. Doors at both ends allow the cars to be brought in at one end and removed at the other, thus securing complete isolation of the infected and disinfected articles, and to utilize space in bringing the cars from one end to the other, two transfer tables are used, whereby the cars are passed in one end, out the other and on to a transfer table rolling on cross tracks. They are then unloaded and passed over tracks alongside on to the second transfer table, and moved again to the working end of chamber.

The working of such a sterilizing chamber as noted may be described as follows: The infected goods being properly loaded upon the car, it is pushed into the chamber, the door closed and made steam-tight by fastening the bolts with a special quick-action ratchet wrench. The steam in the meanwhile has been circulating in the jacket. In a few minutes the temperature in chamber will rise, and the air pump is started until the gage indicates, say, fifteen inches vacuum, when the pump is shut down and the valve on air pipe closed. When the thermometer indicates the temperature of the incoming steam, if ten pounds steam is used, say 240° F., the pipes opening into the inner chamber are opened slightly at first, giving whatever circulation of steam is desired from top to bottom or bottom to top, and this manipulation continued until the pressure in the jacket and inner chamber is equalized, when the by-pass valve can be slightly opened and a circulation maintained for the period of exposure, and opened widely upon its termination to exhaust steam. It can then be closed and the air pump once more started to eliminate the dampness, and then the door on opposite end opened and the car removed and unloaded. During the exposure of one carload, to save time, the second car can be loaded, and thus make a continuous operation.

The advantages of this chamber are pointed out as follows: Reliability, economy, simplicity and convenience of working; elimination of the air by means of a pump; thorough control of the steam and its direction of circulation; large radiating surface in the jacket; complete circulation always through the jacket and thence through the system of piping in the direction desired; reliable and quick operation, whereby the largest amount of work is done; economy in running by the non-conducting covering, enabling the steam to be used for work alone, and not lost by useless condensation.

The Kinyoun-Francis system is already in use in numerous stations by the United States Marine Hospital service, Dr. Walter Wyman, supervising surgeon-general; by State boards of health, and has been supplied for quarantine stations, hospital and municipal or portable service.

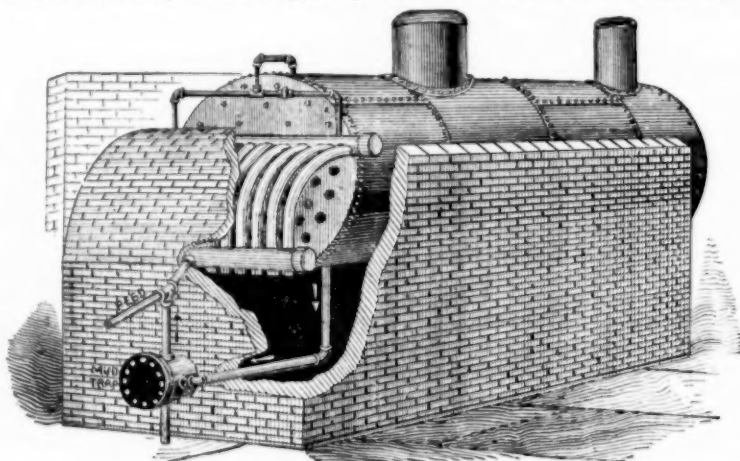
These quarantine stations have been thoroughly fitted with means of disinfection by steam, by sulphur fumes and, by chemicals, having specially designed apparatus for each method. The station at Brunswick, Ga., outfitted with the Kinyoun-Francis machinery, reports the disinfection of sixty-three vessels during the quarantine

season of 1894 without injuring or destroying any of the articles exposed. The United States government has two of these portable plants stationed at Savannah. Much convenience is experienced with the use of this apparatus, securing its service wherever the need is most urgent. The Reedy Island quarantine station, which is looked upon as a model plant, was equipped with Kinyoun-Francis apparatus. The plan of this station is illustrated herewith. Recently the Kensington Engine Works, Philadelphia, Pa., Francis Bros., proprietors, builders of this apparatus, closed contract for putting in a large municipal station at Washington, D. C., and a hospital plant for an infectious-disease hospital.

#### Remarkable Boiler Attachment.

A device which is introduced to the public with great confidence by its manufacturer, and has demonstrated that it is capable of remarkable efficiency, is the C. B. attachment, which is illustrated herewith. This device is pointed to as the missing link which makes the return tubular boiler an ideal steam generator.

It is said to be a matter of common knowledge that the addition of water tubes in any shape about this type of boiler greatly increases the boiler's efficiency. The objections are that these pipes or tubes become more or less filled up with dirt or scale, or "burned out" in a short time. They would, it is explained, never burn out unless they became stopped up,



THE C. B. ATTACHMENT.

or because, from their position and length, the steam forming in them forced the water out and the pipe or tube became red hot.

Briefly, this covers the whole faults and objectional features to pipe attachments. The construction of the heater in the C. B. attachment is said to be such that it is impossible to produce heat that could expel the water from the tubes. These tubes are short, having a large supply of water at the lower end of each tube, and outlets from the upper header into which they are connected ample to allow the outlet of rising water and steam into the boiler.

Placed as the heater is, the intense heat and flame which sweep up against it carries the water through the tubes with such velocity that there is no deposit of dirt or scale left in them. In the C. B. attachment the flames and heat keep the outside of the tubes free from soot, as well as the inside free from any deposit of the solids contained in the water. This attachment is the outcome of a long series of experiments. Its simplicity and freedom from complications are strong points. Repeated tests have shown that it adds a valuable combination of economy, safety and efficiency to the boiler.

Boilers already in operation can be easily and quickly fitted with this attachment.

The arch support (or heater) is composed of headers, which are connected with tubing bent suitable to form the arch, as shown in the cut.

The ends of the upper header rest upon the side walls.

The lower header is supported by the rear wall. The bottom of the upper header is set even with the top of the upper course of flues in the boiler, and this upper header is connected with the boiler by a pipe passing through the boiler-head just below the water line. (Connection not shown in cut).

A mud trap is set in the furnace wall below the arch support or heater, and a pipe connection is made from the bottom of the boiler to the side of the mud trap, and from the top of the mud trap to the bottom header of the heater. The feed-water pipe is connected with this last pipe. The small pipe connecting the top header with steam space in boiler is an equalizer pipe. Connected with the mud trap at its bottom, as shown in the cut, is the blow-off pipe—a pipe connecting the bottom of the boiler to the mud trap, the mud trap to the bottom header of the heater, and from upper header of the heater to the boiler again, just below low-water point; and an interior pipe discharges the water near the front end of the boiler.

The construction allows the water to always flow instantly to the hottest point, and opening from upper header (which in larger boilers are two or more in number) is ample in size to discharge the volume of rapidly-rising water and steam.

This attachment is so constructed that it utilizes the intense heat which in the ordinary boiler setting is radiated and absorbed by the heavy brickwork, often cracking open the walls and the arch, allowing cold

referred to, that when not feeding it is acting as a part of the boiler, generating steam much faster than any other part of the boiler. With the ordinary constant feed it more than heats the water to steaming point, carrying on the circulation from the bottom of the boiler.

Used in connection with a heater, the C. B. attachment, it is stated, gives the same proportion of aid to the boiler, so that the fact of using a feed-water heater does not obviate the value of a C. B. attachment.

The addition of heat surface, circulation, preventing formation of any dirt or scale in the boiler, small amount of water lost in blowing off, having a tight arch and furnace walls, are pointed to as factors which unite in making a saving of fuel by the use of the C. B. attachment.

If the water is allowed to get down to danger point in the boiler the fusible plug in the top header in the heater will melt. As the water enters the boiler through the heater, and the top header is on the low-water line, it would become hot enough to melt out the fusible metal the instant the water got dangerously low.

Installations of this equipment are made by the manufacturer, the C. B. Attachment Co., 271 Broadway, New York city, on a thirty days' trial. The company guarantees, if not fulfilling all representations, to remove the apparatus at its own expense and restore the furnace to its original condition.

#### Utility of Feed-Water Heaters.

A feed-water heater is a recognized agency in promoting the economy of steam generation. The object of using such an apparatus and the duties it should accomplish are chiefly stated in a pamphlet issued by the Kensington Engine Works, of Philadelphia, Pa. This publication is one of the useful specimens of trade literature that are rapidly displacing the old-style catalogue. An abstract from its pages will be of interest, although repeating principles known to the more experienced. We quote the following:

"A feed-water heater is an apparatus designed to transfer any waste heat units, generally from exhaust steam, to the feed water, to raise its temperature before entering the boiler. The great variety of heaters are either open, closed coil, return tubulars or water-tube types. Primarily a due regard for economy requires that the exhaust steam be utilized to heat the feed water, also to obviate these evils—waste of fuel, extensive repairs, danger from explosion, loss of time.

"All water contains, either in solution or suspension, more or less animal and vegetable matter. River and lake water contains five to twenty grains in solution and ten to fifteen grains in suspension. Well and spring water contains from ten to 500 grains in solution and little in suspension. When this water is pumped into the boiler, it naturally forms scale, which practically consists of carbonates of lime, magnesia and iron and sulphate of lime.

"Scale is a bad conductor of heat; iron will transmit heat, compared with scale, in the proportion of 37½ to 1. A boiler scaled one-sixteenth inch thick needs 15 per cent. more fuel than a clean one. Steam at ninety pounds pressure requires the water to be 320° F., and the sheets say 325° F., but when the boiler is scaled the sheets may be anything from 325° to possibly 700° F. At 600° F. iron begins to change its structure from fibrous to granular; in other words, is gradually converted into cast iron. Heat and mechanical force are convertible and identical. The unit of heat is that which is required to raise one pound of water 1° F., and is equal to 772 foot-pounds." A table giving the percentage of fuel saved by heating feed water, as well as the heat units absorbed in generating steam at sixty pounds pressure, is given by the pamphlet.



## Storage Batteries for Railways.

By Maurice Barnett.

In these days, when it is the practice of not a few eminent electrical engineers to damn the storage battery in the field of traction either by too vehement denunciation or by "too faint praise," the announcement in the *Kölnische Zeitung* that the trolley system which has been in use in Hanover for some time has been discarded, and that the twenty-eight cars operated on that system are to be remodeled and equipped with storage batteries, while not conveying solace to the electrical engineers referred to, will prove very gratifying to those who, even in view of some discouraging failures in accumulator traction, have always had a firm conviction that traction work was a legitimate field for accumulators, and that the test of time would prove that storage batteries would be able to hold their own with other representative electric-traction systems.

Since the announcement in the *Kölnische Zeitung* news has been received here that the Dresden Tramway Co. and the Hague Tramway Maatschappij have likewise decided in favor of accumulator traction. Inasmuch as no less important a company than the Tudor Storage Battery Co. is making the installation, it is not at all too optimistic to believe in the ultimate success of the storage-battery cars about to be operated in the above-named places.

Up to the present time the engineers of the overhead system have had matters pretty much their own way. Occasionally a statement of results (coming in all probability from interested sources) bearing upon the success obtained with the open conduit has caused a commotion in the trolley ranks, but, save for that, the erection of poles has gone merrily on, and the manufacturers of trolley machinery have had no complaints to offer on the ground of lack of orders. The past two months, however, have seen the beginning of a mighty change. Today the trolley is considered to have been merely coincident with the evolution of the modern passenger railway, and that its usefulness in the future, at least in cities, is not likely to be greatly overestimated. E. H. Johnson, who, with Lieut. F. J. Sprague, was the pioneer in working out the trolley method of electric transportation, writing in the *Electrical Engineer* under date of October 9, sounds the doom of the overhead line at least in cities and towns. The reason for this belief is to be found in the objection to overhead construction, and secondly, in the fact that greater economies are possible in the newly-projected closed conduit system by reason of the fact that higher voltage may be maintained than is practicable in trolley systems. This criticism, emanating from one of the parents of the overhead-wire system, may be considered to have some weight. Mr. Johnson also proceeds to pay his respects to the open-conduit system, anent the great ado made by the Metropolitan Traction Co., of New York, "over the practical success of their \$150,000-per-mile open-conduit system," by saying, "it was neither scientific nor business like to place the electrical conductors in a sewer and then expend hundreds of thousands of dollars to secure drainage." This represents the view that is at present held respecting the open-conduit electric system. Surely the friends of the electric accumulator can take hope in the discomfiture of their rivals.

Looking impartially at this question, it would seem as if the contest for supremacy in the field of transportation would in the future be between the storage battery and the closed-conduit systems. Which side will win cannot be conjectured at the present time. Neither system is in the final form it will assume when the contest or supremacy takes place, and one is therefore precluded from indulging in

prognostications regarding the outcome.

The above remarks have been called forth by statements appearing from time to time in some of the newer electrical journals, reflecting upon the judgment of those who are instituting the test with storage-battery cars on the Madison avenue line in New York city. The remarks have all been characterized by a sneering incredulity as to the value of accumulators for traction work. Before the next six months are passed the critics of the storage-battery system may have to reverse their conclusions.

The object of the present paper is to emphasize the great value possessed by storage batteries, not in furnishing direct motive power, but when used in connection with railway power plants.

The first accumulators used in connection with a railway power station were, so far as the writer can ascertain, those employed in the power plant of the railway lying between Zurich and Hirslanden, Switzerland, an account of which was published in the "*Elek Zeit*" of June 28, 1894. According to report, the dynamo delivers current under a constant load, the accumulators being charged or discharged as load on the line is less or greater than the output of the dynamo. In this plant there was automatic means for cutting in and out of end-cells to keep the voltage constant. Results showed that by means of the accumulators a saving was effected of 2.2 pounds of coal per hour, amounting to nearly a ton per day, or \$2500 a year. The cost of accumulators, installed complete with all necessary apparatus, was \$7400. Allowing for interest and depreciation, the battery paid for itself in four years by saving in coal bills alone. The saving was effected by reason of there being no necessity to keep a second boiler and steam engine in reserve, and that by this arrangement the power plant ran at its highest efficiency. It was furthermore developed that the first cost of combined steam-power and battery plant was less than cost of total steam-power plant it would have been for the same work.

How important this installation proved may be judged from the fact that a single type of storage battery is now found in Germany and Austria in 80 per cent. of all central stations, besides being installed in fifteen railway power plants and 5000 isolated lighting plants.

Two railways in the United Kingdom have recently attracted a great deal of attention, and, inasmuch as the batteries used in connection with generators are of the chloride accumulator type, manufactured by the Chloride Electrical Storage Syndicate, Limited, the installations have a special interest for American railway managers. These two railways are known as the Douglas-Laxey Line and the Snaefill Mountain Electric Tramway, both in the Isle of Man.

The Douglas-Laxey Line was established about a year ago. From the September 19th, 1895, issue of *Lightning*, London, it is gathered that when the battery was connected to the line, the cars immediately began to run with exceptional smoothness, the accumulators keeping the voltage steady and eliminating all sudden variations due to starting of other cars. How variations would otherwise arise will be understood when it is considered that it requires 150 amperes at 500 volts to carry a loaded car up the  $8\frac{1}{2}$  per cent. grade at a nine-mile rate.

Encouraged by the success attained by the Douglas-Laxey electric tramway, which, after a year of service, "had fulfilled in every way the expectation of its promoters," it was not difficult to secure capital to construct an extension of this road up to the summit of Mount Snaefill. The electric equipment of the Snaefill road resembles that of the Douglas-Laxey Line, both being designed by no less eminent an engineer than Dr. Edward Hopkinson.

The battery consisted of 246 special cells. At 550 volts, battery furnished 176 amperes for three hours, 112 amperes for six hours, eighty-four amperes for nine hours, and seventy-two amperes for twelve hours.

By evening up the load on the generators the battery enabled the plant to work at a high efficiency, and rendered the service extremely satisfactory.

A large economy is made possible by a special use of battery at seasons of the year when there is comparatively little traffic. Under the agreement with the authorities these lines bound themselves to run two cars a day each way every day of the year. Obviously, it would not have paid to keep the power-house in operation just for this load. This is where the battery proves so valuable during the winter months. The battery, being charged once a week, can carry the load for the other six days without necessitating the running of the power plant.

In the United States there are two installations of storage batteries in connection with railway power plants, which are of special interest. The first is at Merrill, Wis., where a battery of chloride accumulators was installed to effect a solution of the problem so constantly occurring in the railway world, i. e., how to bring up the capacity of the power plant to meet the requirements of a constantly-increasing demand. It was decided to use a battery not alone for increasing the light capacity, but for regulating the voltage on the the railway circuit, which, according to the engineer who installed the plant, "was far from satisfactory, owing to the great fluctuations in railway demand." As the lighting machine and railway generator were connected to the same shaft, it can be understood that the light furnished was far from satisfactory. Records kept before battery was installed showed a fluctuation as high as nine volts on each side of three-wire system. Mr. Herbert Condit, in a paper descriptive of this plant, read before the Northwest Association of Electrical Engineers at its last convention, spoke of the performance of this battery as follows: "The great improvement in running of cars was immediately noticed by all, but it was at night that the contrast was most apparent. The two water-wheels were connected together as usual, but the railway generator charged the battery at almost a steady rate, instead of with its ever-varying demand of from 0 to 120 amperes per car. \* \* \* Instead of a succession of sharp peaks, the voltage curve of lighting circuit became practically a straight line; instead of nine volts variation there was practically no variation, demonstrating most clearly the capability of battery to respond to all demands of railway, no matter how severe."

The second plant mentioned is now being installed at Anaconda, Mont., for the Electric Railway, Light & Power Co., of that place. The battery consists of 270 special cells of central-station type of 600 ampere hours' capacity, but admitting of very heavy discharges. The object of battery is to even up load on generators and maintain constant E. M. F. When the battery goes into operation it will be found to give results no less satisfactory than those obtained with the Merrill plant.

To sum up, it may be said that the storage battery is destined to play a very important part in the future in light, heat and power stations. The reason for this statement is to be found in the ability of a good storage battery to act:

First—As a "reservoir" in which may be stored up the energy representing the difference between the average and the maximum demand on a generating plant.

Second—As a regulator of pressure on circuits subject to fluctuating demands, increasing the efficiency of the service and diminishing the wear and tear on apparatus.

Third—As a "transformer" to utilize high

voltage charging currents, and to discharge, when disconnected from generator, at any lower voltage desired.

One fact that has been demonstrated, and which has the most important bearing on the construction of electric railway power plants, or, for that matter, of most electric-light or power stations, is that in any station which has to meet a fluctuating demand for power, a plant consisting of part steam-power and part storage battery is cheaper in first cost than total steam-power plant would be for the same work. The high efficiency and satisfactory performance of such a plant has already been referred to.

## Storage Batteries in Railway and Lighting Stations.

In view of the impetus that has been given to the manufacture of storage batteries by the growing conviction that these "accumulators of electric energy" should form an integral part of every economically-conducted electric plant, it is of interest to note to what extent storage batteries are used in light and power stations.

Undoubtedly the largest sphere of usefulness for the storage battery is in connection with the production of electric light and power. It is well known that the maximum demand for light and power occurs for only a few hours out of the twenty-four. The average demand is far below this. The question therefore arises, how can an electrical plant be equipped so that it may be run at all times with economy and efficiency and be possessed of sufficient flexibility to meet the maximum demand without strain or deterioration? Another desideratum is that the first cost should be low.

The perfection of the storage battery is said to be bringing about a revolution in the equipment of electric central stations. It has been the rule to equip these stations with machinery capable of handling the maximum load. Where this is not done, managers frequently experience breakdowns as a result of throwing too heavy a load on their engines and dynamos. If, on the other hand, in a central station of this kind, direct machinery is put in just large enough for the average load, and a storage battery to take care of the overload, the first cost of the plant is less. In a plant consisting part of steam-power and part of storage-battery equipment the cost, by actual comparison, is found to be only three fourths of what a plant for all steam-power would be for the same work. Again, in a plant equipped with storage batteries, the engine and generators are run under a constant load. When the load is below the average the battery is charged; when the load is above the average the battery discharges, and thus augments the current of the generators. In this way the machinery is not subject to strain, as the battery takes care of the overload. In such plants it is claimed that the depreciation is less than in power plants not equipped with batteries, besides having a reserve in case of breakdown. Storage batteries are particularly valuable in electric plants driven by water-power as "regulators" to neutralize the variation in pressure that arises from variations in the speed of the water-wheel. This variation in speed cannot be corrected, as there is said to be no "governor" known that will regulate closely and quickly enough to keep the speed constant.

A few stations that are equipped or are being equipped with storage batteries are: The Germantown Electric Light Co.; the Edison Electrical Illuminating Co., of New York; the Edison Electrical Illuminating Co., of Boston; the Edison station at Lawrence Mass.; the Merrill Light & Power Co., of Merrill, Wis.; the Electric Railway, Light & Power Co., of Anaconda, Mont., and other plants.

In all the above cases the type of battery known as the "Chloride Accumulator," manufactured by the Electric Storage Battery Co., of Philadelphia, Pa., or the Tudor battery, controlled by this company, have been installed.







business has not shown much expansion during October, and the usual activity for this period of the season has not as yet materialized. The demand, however, is expected to come later on, as stocks are generally light at all points, and the usual class of buyers have not yet appeared in the market. Among recent local contracts, that for the erection of the Liggit & Myers Tobacco Co.'s new factory was let last week. The amount of the contract is in the neighborhood of \$1,250,000. There will be fourteen buildings in the plant ranging from two to six stories in height, and an immense amount of flooring, finishing and dimension stock will be required. The bidding for the lumber contract will attract some attention.

#### Beaumont.

[From our own Correspondent.]

BEAUMONT, TEXAS, November 2.

There has been a decided improvement in the general lumber market during the past week, and the demand has been sharp and very pronounced in character. Inquiries from dealers are coming in freely, showing a disposition on their part to increase their stocks before the winter sets in. The Journal, in reviewing the market, says: "Queries for all classes of the manufactured product have been coming in liberally, and they are couched in such language as to indicate that the point has been reached where dealers are realizing the necessity of stocking up for the winter trade." The demand for heavy timbers and railroad material is not as brisk as usual, but the volume of business in this direction is still very satisfactory, with indications of a larger trade in the near future. There is a good demand for shingles, in fact, greater than the supply. The Long Manufacturing Co.'s band saw and shingle mill began running regularly last Thursday, and the output in that direction improves the supply. At Orange the weather has been against trade, but there is, however, a fair trade in progress, but mills are not so generally well supplied with orders. The Galveston News, in its review of the lumber market, says: "It is unfortunate that at some of the mills there is a scarcity of orders. A month ago they were coming in a steady stream, and some of the mills at Orange are well supplied yet, but this is not the rule." The L. Miller shingle mills are running on full time and shipping shingles as fast as they are dry enough. They are also closing some large timber contracts for next year. The schooner Flora Woodhouse has been chartered for the Litcher & Moore Lumber Co. to carry a cargo of building material to Vera Cruz.

#### Lumber Notes.

The foreign exports of lumber from the port of Baltimore for October were 1,141,000 feet, logs of wood 2873, and staves 112,000.

The total shipments of lumber through the port of Fernandina for the month of October amounted to 5,300,000 feet of yellow pine.

The shingle mill of N. B. Borden & Co. at Fernandina, Fla., started up again last Monday, and will be run continuously during the winter.

The cedar mill now being erected by Mr. E. Suskind, at Callahan, Fla., will soon be completed. He is now putting in the machinery, and will soon commence operations.

A RAFT of cypress logs containing 497,000 feet came out of the mouth of the Ocklawaha river and passed Welka, Fla., on the 28th ult. billed for Palatka to the Wilson Cypress Co.

The shipments of lumber and timber through the port of Pensacola, Fla., for the month of October, are reported as follows: 17,987 feet of hewn timber, 669,000 feet of sawn timber and 13,624,000 feet of lumber.

The continued drought is having a bad

effect upon saw-mill interests at Cordele, Ga. Many mills that have no artesian wells are running on one half to one-third time, while orders for timber keep offering for quick shipments.

THE Leonard Bratt Lumber Co.'s plant at Lester, Ark., two miles north of Camden, on the Iron Mountain road, was destroyed by fire on the 28th ult. Yards and machinery were totally destroyed, entailing a loss of \$10,000; no insurance.

THE planing mill belonging to Messrs. D. S. Louderback and W. H. Huddleston, at Shenandoah, Page county, Va., was destroyed by fire last week. The engine, machinery and a large lot of lumber and building material were all destroyed.

FOR the year ending June 30 the Southern Railway carried 558,101 tons of lumber and logs, being 9.04 per cent. of the total tonnage movement. Of shingles, staves and headings 46,658 tons were moved, being .76 per cent. of the total tonnage.

MR. G. T. POTERFIELD and associates sold recently about 2,500,000 feet of white-pine lumber from their mills on Big Stony creek, in Giles county, Virginia. Sales of 2000 cords of wood have also been made by the same parties to the Narrows tannery.

MR. J. J. CUMMINGS, of Savannah, purchased the schooner Carrie T. Balano and her cargo of lumber, which was sold last week at Beaufort, S. C., by the United States marshal. The price paid was \$7800 for the vessel, and \$5 30 per 1000 feet for the lumber.

THE Ohio Scroll & Lumber Co., of Covington, Ky., was sold last week for \$9750. New articles of incorporation were filed, the incorporators being Peter Spahn and William D. and E. C. Fuess. The capital stock is \$10,000, and the registered office of the company is in Covington.

FOUR million feet of lumber was destroyed by fire at Dauphin, Pa., on the 31st ult., involving a loss of \$75,000. The lumber was owned by the West Branch Lumbermen's Exchange, of Williamsport, and by Fred Kreamer, of Lockhaven. It was covered by \$52,000 insurance.

THE Consolidated Export Lumber Co., of Beaumont, Texas, has chartered the schooner Ada Nike for one trip, with the option of five, to ply between Sabine Pass and Tampico, Mexico. The Nike has a carrying capacity of 375,000 feet of lumber, and was due at the Pass on the 1st inst.

THE leading furniture manufacturers of Chattanooga, Tenn., report business this season as very active. Messrs. Loomis & Hart, the Acme Safe Co. and the Chattanooga Furniture Co. are all said to be flooded with orders. The growth of the industry is steady, and the outlook more promising than usual.

THE plant of the Arkansas Lumber Co. at Prescott, Ark., has been purchased by Mr. Tracey R. Thomas, formerly vice-president of the Ferguson Lumber Co., of Little Rock. Mr. Thomas will move to Prescott and personally manage the mill. It has a capacity of 40,000 feet per day, and the planing mill 125,000 feet per day.

THE Capital Sash and Blind Factory of A. Doherty & Co., of Baton Rouge, La., was burned on the 28th ult. Besides the buildings and machinery, there was a large amount of stock on hand, which was destroyed. The loss is estimated at between \$15,000 and \$18,000, covered to the extent of about \$8000 in various agencies in the city.

MR. CHARLES DIRMeyer, secretary of the Mechanics, Dealers and Lumbermen's Exchange of New Orleans, reports the following receipts for the week ending October 31: Lumber 2,139,500 feet, and for the season 26,034,500 feet, against 18,677,766 feet last season; shingles 478,000 feet, oak staves 95,062, and cypress staves 55,000.

THE box factory at Kenner, La., owned by the Cottonwood Box & Lumber Co., of New Orleans, La., is now nearing completion. Steam was turned on last week to test the machinery, which worked satisfactorily. The factory is intended to use cottonwood in the manufacture of boxes of various descriptions. Operations will commence next week.

THE planing mill of the Georgia & Florida Investment Co., at McIntyre, Fla., thirty-five miles south of Tallahassee, on the Carabelle, Tallahassee & Georgia Railroad, was burned on the 29th ult. The machinery, kilns and all the lumber stored therein were destroyed, including about 1,000,000 feet of pine lumber, mostly dressed and ready for shipment.

It is stated that the Mountain Lake Lumber Co., of Giles county, Va., has sold to a Chicago lumber firm for \$56,250 cash a boundary of timber lands out of the large tract that this company purchased a year or so ago from the Mountain Lake Land Co. A portion of the fund, it is said, will be used in the completion and equipment of the Big Stony Railway.

MESSRS. SHIPPEN BROS., of Louisville, Ky., report the lumber trade this fall as good, and in every line the industry is improving, with the exception of poplar, which is dull and easy. This firm recently purchased a plant at Ellijay, Ga., consisting of a band mill, planing mill, dry-kiln and panel and veneer mills, with about 41,000 acres of fine timber land. They will shortly put a seventy-five horse-power boiler in their planing mill, and also add other machinery.

CONSUL STEPHAN, at Annaberg, in a report to the State Department at Washington, quotes Ernest Faber, the well-known pencil maker, as deploring the condition of the lead pencil industry in Germany. He says that the barbarous destruction of valuable cedar forests in America without replanting has gradually increased the price of wood suitable for pencil-making, while the Americans have literally swamped the British and Mexican and Indian markets with cheap pencils.

MR. JOHN W. MADDOX, formerly connected with the Morgan Manufacturing Co., of Jamestown, N. Y., is now located at Brenham, Texas, where he has made arrangements to start a furniture factory. He is buying modern machinery throughout, which on its arrival will be put in position and operations commenced. Mr. G. Herman, of Brenham, will locate a saw mill near Hempstead for the purpose of sawing elm, ash and other woods for the furniture plant at Brenham.

#### An Excellent Enterprise.

One of the gratifying results of the publicity that has of late years been given to the South's natural attractions is that it has called the attention of the medical profession and of philanthropists to the many beautiful and healthful localities where those who can no longer endure the rigors of Northern climates may go, regain their health, enjoy life and find abundant opportunities for engaging in profitable pursuits. In a recent issue mention was made of the great educational institution that Mr. Georg Vanderbilt was about to establish for the benefit of the young men of America, and of the Christian settlement that Rev. John C. Collins, of New Haven, and his associates had projected. There is another undertaking lately mentioned in the MANUFACTURERS' RECORD already well under way, which was projected and is being rapidly pushed by Mr. James W. Tufts, a Boston manufacturer of large wealth. This gentleman has long seen the need of a resort for refined people, such as clergyman, teachers and others of small incomes, whose health was impaired, and who needed rest in a genial climate and amid pleasant surroundings. He decided

that it was his duty to supply this need, and sought and found a suitable location in Moore county, North Carolina, where he bought 5000 acres of pine forest on the high sand ridge, on which are the flourishing villages of Southern Pines and Pine Bluff. This site is about seven miles west of the Seaboard Air Line Railroad, and is covered with a virgin forest of long-leaf pine. The purchase was made last June, since which time a large force of workmen has been employed in preparing 100 acres in the centre of the tract for his settlement. Before the first of December cottages and apartment-houses will be finished for the accommodation of several hundred persons, and an electric road will be built from the Seaboard's nearest station to the village, so that invalids can ride in comfort in heated cars to and from it. During the winter months the streets and all the buildings will be illuminated by electricity. Water will be brought into the city from a distant source, and absolutely protected from contamination. A complete system of drainage has been devised, and everything that sanitary science approves has been adopted to maintain the natural purity of the locality. Mr. Tufts's plans include the erection of a union chapel, a schoolhouse, a casino for dances and other innocent amusements, and a fine hotel where people of means may live as expensively as they see fit.

The town is to be beautified by trees and shrubs. In addition to the water oak of Florida, which will be largely cultivated, and many native trees, more than 30,000 shrubs and ornamental trees have been ordered from France, and many gardeners and laborers are getting the land in readiness for them.

This is in every sense a philanthropic enterprise for the benefit of self-respecting, independent people of small means. All that its projector hopes is to make it self-supporting. It is not intended for the treatment of patients in advanced stages of phthisis or for any other class of confirmed invalids, but only for those for whom such a resting place is needed to save them from "running into a decline."

This enterprise, like those of Messrs. Vanderbilt and Collins, would never have been undertaken if the MANUFACTURERS' RECORD had not for many years exploited the natural attractions of the South and stimulated others to do the same, until finally Northern people began to realize that Florida was not the only sunny spot for winter pleasure tourists and invalids, but that in all her great States the South had lovely and healthful sites, with environments suited to every taste and every need of the invalid or the overworked who needed rest.

#### Wise Men

read the advertising pages of the MANUFACTURERS' RECORD carefully because they are always sure to find something of value; it may be a special sale, or an opportunity for investment, or some new machinery, or some one looking for a location for a factory, or a thousand and one things advertised that may concern you. Every man ought to study newspapers, not simply glance over them, but examine in detail the MANUFACTURERS' RECORD, for instance, and he will be sure to find something that can be made profitable in his business. In its news columns and in its advertising pages he will find matter that may prove invaluable in his business operations.

LOVERS of floriculture find much interest in the monthly appearance of a publication issued by Thomas Meehan & Sons, Germantown, Philadelphia, Pa. The November number of this journal maintains its usual instructive character. Useful hints on general gardening and the cultivation of wild flowers, as well as other interesting reading matter, are contained in this issue.



# CONSTRUCTION DEPARTMENT.

**THE MANUFACTURERS' RECORD** seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

\*Means machinery, proposals or supplies are wanted, particulars of which will be found under the head of "Machinery Wanted."

†In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the MANUFACTURERS' RECORD.

## ALABAMA.

**Birmingham—Rolling Mill.**—The Birmingham Rolling Mills are progressing with their improvements, including guide mill, sheet mill and four rolling mills.

**Birmingham—Bolt and Nut Works.**—The Birmingham Bolt and Nut Works has succeeded the Birmingham Nut & Bolt Co., with a capital of \$30,000. Henry Passolt, of Saginaw, is president; Edward Phillips, vice-president; J. H. Johns, superintendent; H. A. Passolt, secretary and treasurer. The company will manufacture large bolts, nuts, rods (plain and upset ends), plates and forgings for builders, contractors, mines, car works, etc.

**Dadeville—Electric Plant.**—W. P. Pinckard, of Birmingham, has purchased the Sanford shales water-power; will develop same and erect plant to develop electricity.

**Dadeville—Gold Mine.**—Charles Gay, of Montgomery, will erect an \$8000 plant near Dadeville for gold mining.

**Eufaula—Cotton Mill.**—The Eufaula Cotton Mills' stockholders will next week consider increasing capital by \$150,000, and, if decided upon, will erect a 15,000-spindle and 350-loom mill.

**Florence—Cotton Mill.**—The Cherry Cotton Mills will build an additional mill next year. C. E. Cowarden will prepare plans.

**Fort Payne—Steel Mill.**—E. N. Cullom, of Birmingham, and associates will organize a company to operate the old steel mill at Fort Payne.

**Mobile—Grain Elevator.**—A proposition for a 250,000-bushel grain elevator has been submitted through Henry Forde.

**Opelika—Acid Chambers.**—Trawick & Jernigan will erect acid chambers.\*

**Tuscaloosa—Creamery.**—A company will be organized to erect a butter and cheese factory. Dixon C. Williams is interested.

## ARKANSAS.

**Fort Smith—Electric Plant.**—The Fort Smith & Van Buren Light & Transit Co. has been incorporated to build an electric railway and an electric-light plant in Sebastian and Crawford counties; capital stock \$200,000; incorporators, M. N. Beatty, H. C. Mechem, J. H. Clendenning and F. A. Youmans.

## FLORIDA.

**Callahan—Saw Mill.**—E. Suskind is adding new machinery to his cedar mill.

**Jacksonville—Wells.**—Contract let to B. S. Partidge, at \$3838, for boring an artesian well.

**Sanford—Tannery.**—D. C. Thompson, Alex. McEachern and M. Rohrer have incorporated the Sanford Tannery & Extract Co. to manufacture leather, etc.; capital stock \$15,000.

## GEORGIA.

**Atlanta—Cotton Mill.**—A \$200,000 stock company, to be known as the Piedmont Cotton Mill, is being organized to erect a cotton mill to have R. U. Hardman, president, and H. H. Cabanis, secretary.

**Atlanta—Bridge.**—A \$15,000 bridge will be constructed. Address the mayor.

**Augusta—Cotton Factory.**—The Augusta Factory will expend \$75,000 on improvements.

**Canton—Mica Mines.**—R. W. Walker is opening mica mines.

**Cartersville—Mines.**—Jno. W. Akin and others have incorporated the Bartow Mining Co. with a capital stock of \$5000.

**Douglasville—Cotton Mill.**—The Douglasville Cotton Mill, recently reported, will have 4000 spindles instead of 2600, as at first stated; cotton hosiery yarns will be made.

**Douglasville—Knitting Mill.**—The Douglasville Cotton Mill will put in 100 machines for knitting.

**Ellijay—Lumber Mill.**—Shippen Bros. are adding a seventy-five horse power boiler and other machinery.

**Rome—Cotton Mill.**—David and J. N. Trainer, of Chester, Pa., are said to contemplate building a \$200,000 mill at Rome.

**Savannah—Car Works.**—J. J. McDonough, Jno. Flannery and others have purchased the Huntington Car and Wheel Works at Huntingdon, Pa., and will remove same to Savannah.

**Tallapoosa—Iron Furnace.**—A manufacturer of the Birmingham district has made a proposition by R. L. Spencer for the operation of the Tallapoosa furnace if the logging road is completed. If accepted, \$15,000 will be expended to rebuild furnace, add new air-blowing engines, heating stoves, etc.

**Thomasville—Improvement.**—Bill has passed legislation authorizing issuance of \$35,000 in bonds for general improvements. Address the mayor.

**Valdosta—Guano Factory, Yarn Mill, etc.**—Allen J. Strickland is erecting a guano factory of fifty tons daily capacity. Next summer will put in a yarn mill or sash and blind mill.

## KENTUCKY.

**Ashland—Bridge.**—Samuel Bigstaff, of Cincinnati, Ohio, has optioned the charter for a bridge over the Ohio river. It is proposed to organize a \$3,000,000 company and construct the bridge.

**Covington—Lumber Company.**—Peter Spahn, Wm. D. and E. C. Feuss have incorporated the Ohio Scroll & Lumber Co. with a capital stock of \$10,000.

**Georgetown—Electric Plant.**—The Georgetown Street Railway will doubtless build an electric-power plant.

**Louisville—Worsted Mill.**—C. F. Murphy, of Boston, Mass., has purchased the Pioneer Worsted Co.'s Mill for \$41,350.

**Owensboro—Electric-light Plant, etc.**—The city will hold an election to consider issuing \$25,000 in bonds for an electric-light plant, \$25,000 for street improvements and \$25,000 for sewerage.

## LOUISIANA.

**Abbeville—Sugar Refinery.**—The Rose Hill Planting & Refining Co. will be organized with \$100,000 capital and will erect a 1000-ton daily capacity sugar mill, mentioned last week, near Abbeville. J. H. Putnam will be manager.

**Jennings—Rice Mill.**—Dunlap & Cary will erect a rice mill.

**New Orleans—Mercantile.**—F. O. Trepagnier and others have incorporated Trepagnier & Bros., Limited, with a capital stock of \$20,000.

**New Orleans—Medical Company.**—The New Orleans Kneipp Water Cure, Limited, has been incorporated with a capital stock of \$50,000, and Hugo Flynn, president; Michael Spori, secretary.

**New Orleans—Machine and Ship-building Shops.**—The New Orleans Machine & Ship Building Co. will be organized, and subscriptions are now being solicited by Charles Logue. Machine shops and a lot of machinery now idle have been secured.

## MARYLAND.

**Baltimore—Electric-light Plant.**—The park board has in contemplation the erection of an electric-light plant. Address the mayor.

## MISSISSIPPI.

**Aberdeen—Land Company.**—Geo. V. Reynolds, Alex. Nanoni and others have formed the Aberdeen Land Co. with a capital stock of \$10,000.

**Bay St. Louis—Water Works.**—The city will construct a system of water works. Address the mayor.\*

**Jackson—Cotton Mill.**—Wm. Henry has a proposition from Eastern parties for the erection of a \$200,000 cotton mill.

**Lacy—Planing Mills.**—The Carver Lumber Co. will put in planing mills and d y-kilns.

**Vicksburg—Cotton Mill.**—The Board of Trade has a proposition for erection of a cotton mill by Eastern investors through C. E. Wright.

**Yazoo City—Cold-storage Plant.**—The People's Ice Co. is erecting a cold storage plant.

## MISSOURI.

**Clinton—Ice Plant.**—The Clinton Ice Co. will add a 20-ton plant.

**Edina—Flour Mill.**—The Edina Roller Mill Co. has contracted for extensive repairs.

**Joplin—Lead and Zinc Mines.**—The Germania Company is putting in new outfit of heavy machinery to resume mining.

**Nevada—Gas Plant.**—The Nevada Light Co. has closed contract for a building for the purpose of improving and enlarging the gas plant.

**St. Louis—Implement Works.**—The Whitman Agricultural Works has about completed its new \$250,000 plant. Works include a machine shop 130x67 feet, foundry 130x70 feet, blacksmith shop 60x100 feet, erecting shop 130x60 feet, etc.

**St. Louis—Building Company.**—The W. A. Sprague Building Co., capital \$11,000, has been incorporated by W. A. Sprague, J. E. Sprague and William Eikmeyer.

**Wilton—Lead Mines.**—Edgar E. Woods, representing St. Louis capitalists, will erect a \$30,000 plant and open lead mines.

## NORTH CAROLINA.

**Asheboro—Gold Mine.**—Kansas City parties will develop the Doub go'd mine, putting in new machinery, etc. Address J. W. Birkhead, Asheboro.

**Charlotte—Gold Mine.**—E. V. A. Smith will soon reopen the Chiquipin Hill gold mine.

**Charlotte—Machine Shops.**—The Seaboard Air Line will build railroad shops.

**Charlotte—Gold Mines.**—G. F. Edmiston, Jno. W. Hinsdale, A. P. Massey and O. H. Dorsett have incorporated the St. Catharine Gold Mining Co. with a capital stock of \$100,000 to develop an established mine.

**Fayetteville—Cotton Mill.**—L. W. Holt will erect a \$200,000 cotton mill, and has already contracted for the brick. A bleachery may also be established.

**Gastonia—Cotton Mill.**—G. A. Gray will build a cotton mill, as reported last week, to contain 5000 spindles and 250 looms.

**Raleigh—Cotton Mill.**—A mill for weaving and spinning will be erected on water power just developed near the city; Mr. Wiley Clifton constructed the dam.

## SOUTH CAROLINA.

**Bluffton—Land Company.**—C. J. C. Hutson, W. J. Gooding, J. K. Garnett and W. J. Gooding, Jr., have incorporated the Hunting Island Land Co., the place of business being near Bluffton. The capital stock is to be \$50,000.

**Charleston—Cotton Delinters.**—Jas. L. Logan, O. T. Bogg and G. H. Vancy, of Atlanta, will erect a cotton-delinting plant of twenty-five carloads daily capacity.

**Florence—Planing Mill.**—B. C. Lambert is putting in new machinery; also lath machinery.

**Seneca—Oil Mill.**—Report says that Mr. Coleman will erect a cottonseed-oil mill.

## TENNESSEE.

**Bluff City—Bridge.**—Contract for building steel bridge 360 feet long has been awarded to Morris Cope, of Chattanooga, agent for the Columbus Bridge Co.

**Chattanooga—Refrigerator Works, etc.**—E. G. Richmond, Jas. H. Keyser and others have incorporated the Keyser Manufacturing Co. to manufacture lumber, refrigerators, etc. with a capital stock of \$40,000.

**Clarksville—Pants Factory.**—The Clarksville Manufacturing Co. will be organized with a capital stock of \$30,000 to manufacture pants, shirts and drawers. J. J. Chappell, of Cadiz, Ky., will be manager. J. W. McGhee and others are interested.

**Kimball—Coal Mine.**—Ed E. Richardson, of Chattanooga, will reopen the Wall coal mine.

**Knoxville—Furniture Factory.**—Frank S. Atkins, manufacturer of furniture, will erect a new factory.

**Madisonville—Flour Mill.**—A company is reported as being formed to erect a flour mill.

**Nashville—Mills.**—The Lenoir Milling Co. has been chartered.

**South Pittsburg—Stove Works.**—The \$250,000 Harvest Stove Works has been sold to A. M. Shook, of Knoxville.

## TEXAS.

**Bivins—Flour and Corn Mill, etc.**—R. R. Cobb will erect at Old Wayne, near Bivins, a ten bushel-per-hour flour mill, corn mill, feed mill, cotton gin, etc.

**Bonham—Coal Mines.**—A. J. Clendenen, J. S. Dorsett, R. D. Chaney and others have formed a company to open coal mines on 5000 acres of land which they have leased.

**Bonham Flour Mill, etc.**—G. L. White will im-

prove his mill and erect a 30,000-bushel grain elevator.

**Bowie—Mercantile.**—The Phillips-Kemp Grocery Co., capital stock \$5000, has been incorporated by T. C. Phillips, B. F. Wilhite and Jno. B. Hunt.

**Brandon—Cotton Gin.**—Walling Bros. will rebuild burned cotton gin.\*

**Corpus Christi—Irrigation.**—J. W. Ward will irrigate a large tract of land.

**Dallas—Starch Factory.**—Jas. M. Hardie contemplates erecting a starch factory.\*

**Dallas—Book Company.**—The Dallas Book Co., capital stock \$5000, has been incorporated by Robert P. Lyon, Luther W. Clark, J. F. Smith and M. W. Sims.

**Denton—Oil Mill.**—The Denton Cotton Oil Mill will rebuild its burned plant; no machinery purchased yet.

**Fort Worth—Packery.**—The Chicago (Ill.) Packing & Provision Co. has purchased the Fort Worth packery and will enlarge same, putting in cold-storage room, etc.

**Galveston—Slate Quarries.**—The Browne Slate Co., capital stock \$5000, to manufacture slate roofing, has been incorporated by Edmonde Browne, Fred Hartel and Jos. M. Laughlin.

**Galveston—Brewery.**—The Galveston Brewing Co. will build the new plant at once; Tungenfeld & Co., of St. Louis, architects.\*

**Galveston—Rope Mill.**—The Galveston Rope Co., capital stock \$200,000, has been incorporated by G. W. Sealey, H. A. Landes and Arthur B. Homer to operate the Galveston Rope and Twine Mill.

**San Antonio—Business Bureau.**—The San Antonio Business Bureau, a money-lending concern, capital stock \$10,000, has been incorporated by Marion Robertson, Frank A. Hess and Thomas H. Egerton.

**Strawn—Coal Mines.**—The American Coal Mining Co. is opening new mines near Strawn. W. W. Johnson is secretary.

**Texarkana—Mercantile.**—Chartered: The Texarkana Clothing Co., capital stock \$15,000, by P. T. Norwood, S. D. Leary and W. B. Stuart.

**Waco—Vehicle Works.**—The Texas Co operative Manufacturing Co., recently chartered, is now preparing to commence work in the near future on its works for manufacturing carriages, buggies and wagons.

**Waco—Water Company.**—The Waco Water & Light Co. is being reorganized.

**Waxahachie—Coal Mine.**—B. Baumgartner is opening a coal mine.\*

## VIRGINIA.

**Fulton—Chemical Works.**—Richmond Chemical Works is building a large storage room.

**Pulaski City—Iron Mines.**—W. R. Hughes and associates will develop iron mines, erect washers and large plant.\*

**Richmond—Locomotive Works.**—The Richmond Locomotive and Machine Works are making improvements, putting in a new 250-horse-power Corliss engine and other machinery; also enlarging foundry and building new blacksmith shop.

**Roanoke—Furnace.**—The West Roanoke Iron Co. is now preparing to blow in the West End furnace.

**Springwood—Saw Mill.**—Wm. Robinson and W. H. Hammet have built a saw mill.

**Staunton—Manganese Mine.**—James T. Lightner is opening his manganese mine on the Norfolk & Western Railroad, and has built a fine mining plant, including washer, gig, etc.

**Timberville—Lead Mines.**—The Virginia Mining Co. has been organized to develop lead mines near Timberville. P. S. Loucks, president; C. Grazier, secretary, and Robert Skemp, treasurer, all of Scottsdale, Pa.

## WEST VIRGINIA.

**Benwood—Bridge.**—Trimble & Miller, of Pittsburgh, Pa., will prepare plans for the bridge of the Bellaire & Benwood Bridge Co., of Bellaire, Ohio.

**Fairmont—Oil Wells.**—John W. Mason, B. F. Ramage and others have incorporated the Thompson Oil & Gas Co. with a capital stock of \$100,000.

**Flemington—Coal Mines.**—The Elk Garden Coal Co. has leased 5000 acres of coal lands near Flemington, and will develop same.

**Huntington—Glass Works.**—The Chamber of Commerce has closed arrangements for the sale of the glass works at Central City to parties who will make improvements and operate; will employ 300 to 400 men.

**Huntington—Lock Works.**—D. E. Matthews, J. H. Holmes and others will organize company to manufacture a combination safety lock.

**Parkersburg—Ice Plant.**—The Parkersburg Ice Co. has contracted for a 15-ton ice plant.



**Waverly—Oil Wells.**—James McKee, Alex. Durst and others have formed a company to drill for oil.

**Wheeling—Ice Plant.**—The Reymann Brewing Co. has let contract for a 100x80-foot icehouse.

#### BURNED.

**Aberdeen, Miss.**—The compress of the Aberdeen Hope and Oil Mills; loss \$45,000.

**Baton Rouge, La.**—A. Doherty & Co.'s sash and blind factory; loss \$15,000.

**Camden, Ark.**—The Leonard Bratt Lumber Co.'s planer and dry-kiln; loss \$10,000.

**Centre Star, Ala.**—Ben & Andrew Williams's cotton gin.

**Columbus, Ga.**—The City High School, etc.; loss \$10,000.

**Covington, Ky.**—Dr. Terrell's tobacco warehouse and machinery; loss \$5000. Address care of J. H. Bade.

**Douglas, Ga.**—Day & Smith's saw, planing and stove mills.

**Edwards, Miss.**—A. J. Lewis's cotton gin; loss \$2000.

**Florence, Ala.**—A. D. Coffee's cotton gin.

**Florence, Ala.**—A. D. Coffee's cotton gin.

**Lester, Ark.**—The Leonard Bratt Lumber Co.'s plant; loss \$10,000.

**Lumberton, Miss.**—A. J. Clark's turpentine still; loss \$3000.

**Lumberton, Miss.**—A. J. Clark's turpentine distillery.

**Mexia, Texas.**—J. Pritchard's grist mill and gin.

**Phalia, Miss.**—Jett Dent's saw mill and gin; loss \$4500.

**Selma, Ala.**—Erwin Smith's cotton gin; loss \$2000.

**Starke, Fla.**—M. Entenza's cigar factory; loss \$4000.

**Tatum Station, S. C.**—Aaron Manship's grist mill and gin.

**West Point, Miss.**—Dr. Mather's gin; loss \$4000.

#### BUILDING NOTES.

**Baltimore, Md.**—Warehouse.—Jos. M. Cone will change the plans of his warehouse now building and enlarge somewhat. Steam heat, passenger and freight elevators and electric lights will be installed.

**Baltimore, Md.**—School.—Contract has been let to A. R. Shipley at \$25,000 for the erection of a new school building.

**Carrollton, Ga.**—Schools.—Bill has passed legislation authorizing issue of \$20,000 in bonds for public school buildings. Address the mayor.

**Charlotte, N. C.**—Samuel Asbury will prepare plans for a \$7500 building for Jas. H. Carson.

**Chattanooga, Tenn.**—Church.—The Central Congregational Church contemplates erecting a \$13,000 structure.

**Clear Creek, Texas.**—Asylum.—Bids will be opened November 18 for the erection of a brick building for lunatic asylum to cost \$10,000. Address Geo. H. Law, Jr., clerk county court.

**Clinch, Va.**—Hotel.—Patrick Hagan will build a hotel in the near future, as recently reported.

**Columbus, Ga.**—Office Building.—Proposals will be opened November 15 for erection of store and office building for Columbus Investment Co. Address J. F. Flournoy, president.

**Gainesville, Fla.**—Church.—The Baptists propose erecting a \$6000 church.

**Galveston, Texas.**—Asylum.—Plans and specifications invited within sixty days for brick insane asylum to cost \$10,000. Address Geo. H. Law, Jr., county clerk, Galveston, Texas.

**Greenville, Ala.**—Stores.—John A. Owens will build two brick stores.

**Hot Springs, Va.**—Hotel.—J. P. Pettyjohn & Co., of Lynchburg, Va., have contract to build a \$70,000 hotel after plans by A. O. Elzner, of Cincinnati, Ohio.

**Long Green, Md.**—Dwelling.—Chas. J. Bonaparte, of Baltimore, let contract to Jno. Cowen for a \$30,000 dwelling.

**Montezuma, Ga.**—Store.—Louis Lippman will erect a brick store building.

**New Orleans, La.**—Dwelling.—J. C. Gilmore has permit to build a \$7500 dwelling.

**Port Lavaca, Texas.**—Store.—A Paulson will erect a store building.

**Raleigh, N. C.**—Hotel.—The proposed hotel of R. H. Wright will be built next year.

**Richmond, Va.**—Courthouse.—The supervisors of Henrico county contemplate building a \$25,000 courthouse.

**Rome, Ga.**—G. P. Smith has let contract to T. L. Houser for a two-story 30x100 foot business-house to cost \$3000.

**Sistersville, W. Va.**—Depot.—Funds are being raised to build a depot. C. A. Krug is interested.

**Temple, Texas.**—Church.—Chartered: The First Christian Church, capital stock \$10,000, by L. W. Goodwin and others.

**Washington, D. C.**—Dwelling.—J. B. Edwards has permit to build a \$9000 dwelling.

**Washington, D. C.**—Dwellings.—John L. Weaver has permit to build five dwellings to cost \$30,000.

**Wheeling, W. Va.**—Clubhouse.—It is reported that Henry Schmulbach will erect a clubhouse.

#### RAILROAD CONSTRUCTION.

##### Steam Railways.

**Albany, Ga.**—It is stated that the Albany, Florida & Northern may be extended from Albany to Bainbridge, Ga., by the company now in control. J. S. Creas is general manager.

**Augusta, Ga.**—The MANUFACTURERS' RECORD is reliably informed that a company may soon be organized to build a line from Augusta to a point on the Seaboard Air Line at or near Elberton.

**Beaumont, Texas.**—Surveys are being made for the proposed road from Beaumont to Sabine Lake.

**Brunswick, Ga.**—The stockholders of the South Brunswick Railroad Co. will meet on November 30 to vote on issuing \$500,000 in bonds to build the proposed line from Brunswick through Wilcox and Irwin counties to Cordele, Ga.

**Calvert, Texas.**—Business men of Calvert have formed a company to build a line from Hearne to Calvert. The capital is \$100,000, and over \$30,000 in stock has already been subscribed.

**Charleston, S. C.**—Mr. F. W. Wagener, of the Security Construction Co., confirms the report that the \$200,000 capital of the company has been taken. He informs the MANUFACTURERS' RECORD that terminals will probably be donated by the city, and the road will be built by way of Knoxville, Tenn., or Macon, Ga.

**Fort Smith, Ark.**—It is reported that contracts have been let to build a portion of the St. Louis, Siloam & Southern road, and that it will be completed between the points named in eighteen months. H. D. Mackay, of Pomona, Mo., is president.

**Franklin City, Va.**—It is reported that the Delaware, Maryland & Virginia division of the Pennsylvania system may be extended from Franklin City to Cherrystone, Va. George B. Roberts, at Philadelphia, is president.

**Fredericksburg, Va.**—It is reported that Richmond parties are negotiating to build what is known as the Fredericksburg & Millenbeck Railway.

**Glendon, N. C.**—Frank D. Jones, superintendent of the Glendon & Gulf Railroad Co., writes the MANUFACTURERS' RECORD that the proposed extension will be from Glendon to Parkwood, N. C., seven miles. Rolling stock and rails may be bought.\*

**Greenville, Ala.**—W. H. Parrish is president of the company which is making surveys for the railroad proposed to be built southeast of Greenville.

**Hamburg, Ark.**—Austin Corbin, president of the Long Island Railroad, is reported to be interested in a plan to build a railroad from Hamburg to his plantation, "Sunnyside," on the Mississippi river. The distance is fifty miles.

**Holden, Mo.**—The branch of the Missouri, Kansas & Texas from Greenridge to Holden, thirty-nine miles, is completed, and trains are being operated over it.

**Hot Springs, Ark.**—It is stated that the company which is promoting the cable railway to the top of West Mountain has let a portion of the contracts for the undertaking. Hon. Geo. W. Baxter, of Hot Springs, and S. W. Fordyce, of St. Louis, are interested.

**Kansas City, Mo.**—It is stated that the Kansas City, Pittsburg & Gulf Company will extend its line from Port Arthur, on Sabine Lake, to Houston, eighty miles, when the system is completed to Port Arthur.

**Lexington, Ky.**—What is known as the Ohio & Kentucky Railway Co. will build a road ninety miles long through Morgan county, in Eastern Kentucky, it is reported.

**Lee's Summit, Mo.**—Willard E. Winner and others are promoting a project to build a line from Dodson to Lee's Summit to be operated by a steam dummy.

**Nevada, Mo.**—Edward Brown, of Girard, Kans., is interested in a company which has taken up the project to build a road from Nevada to El Dorado Springs.

**Nevada, Mo.**—The company interested in the proposed line from Nevada to El Dorado Springs has surveyed the route and begun grading. The distance is twenty miles.

**Palm Beach, Fla.**—About seven miles of road have been laid and forty-five miles graded on the extension of the Florida East Coast Line from Palm Beach to Biscayne Bay. E. B. Carter, at St. Augustine, is chief engineer.

**Pembroke, Va.**—It is stated that the railroad being built from the Norfolk & Western to the Mountain Lake Land & Lumber Co.'s property is to be completed at once. John Sexton, of Roanoke, Va., is general contractor for the road, which is to be eleven miles long.

**Pine Bloom, Ga.**—It is reported that B. B. Gray will extend his private railroad line eight miles to the Ocmulgee river.

**Prattville, Ala.**—The branch of the Louisville & Nashville from Coosada station to Prattville has been completed and is in operation.

**Thornton, Texas.**—Messrs. Lloyd & Duncan are the promoters of the proposed line from Thornton to the coalfields sixteen miles south of the town.

**Warren, Texas.**—C. A. Epping, of the Warren Land & Lumber Co., it is stated, will shortly let contracts for building a new road from a point near Warren, Texas, on the road at present operated by that company, connecting the Sabine & East Texas branch of the Southern Pacific with the Houston, East & West Texas road.

##### Electric Railways.

**Baltimore, Md.**—The Catonsville division of the City & Suburban Railway Co. has been rebuilt for electric motors, and is now being operated with the trolley system. It is seven miles long.

**Nevada, Mo.**—The Nevada Electric Railway Co. is about to begin the work of substituting the trolley system for the horse-car lines now in operation in Nevada. A power house is being built.

**Richmond, Va.**—Construction work on the Richmond Traction Co.'s electric line has begun. It is to be completed in four months. Mr. A. Langstaff Johnson is engineer.

**Jacksonville, Fla.**—It is reported that Boston and Chicago people are interested in a project to build a road from Jacksonville to Orange Park, thirteen miles long. Mr. J. F. Eldridge, at Orange Park, is interested.

**New Orleans, La.**—The Orleans Street Railway Co. will have most of its electric system in operation by November 15. It has secured twenty motor cars. H. J. Maloche, Jr., is superintendent.

#### Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The MANUFACTURERS' RECORD has received during the week the following particulars as to machinery that is wanted.

**Acid Chambers.**—Trawick & Jernigan, Opelika, Ala., wants prices on acid chambers.

**Bags.**—Mike Brown, Barnwell, S. C., wants quotations on bags for holding meal and grits.

**Belling.**—J. E. Greene, Athens, Ga., will need belting.

**Boilers.**—Proposals for furnishing two horizontal tubular boilers for electric-light plant will be opened November 15. Address Hoke Smith, Secretary Department of Interior, Washington, D. C.

**Boiler and Engine.**—See "mining plant."

**Boilers and Engines.**—The American Manufacturing & Export Co., 78 Marietta street, Atlanta, Ga., wants figures on 250 horse power slide-valve Corliss engine and three boilers, eighty horsepower each, delivered at Charleston, S. C. See "electric generator."

**Brewery.**—The Galveston Brewing Co., Galveston, Texas, will buy brewing machinery, steel and iron construction for building, engines, pumps, cooperage, etc.

**Corn Mill.**—J. E. Greene, Athens, Ga., will want prices on a portable corn mill, iron frame, new or second hand, with or without gearing.

**Corn Mill.**—C. E. Jarot, Florence, S. C., wants a corn and cob crusher.

**Cotton Gin.**—Curry & Davidson, St. Joseph, La., will want ginstand, feeder, condensers, elevator outfit, press, iron roofing, siding and smokestack, etc.

**Cotton Gins, etc.**—Walling Bros., Brandon, Texas, will want gins, shafting, pulleys, distributors, iron or steel roofing, siding, etc.

**Cotton Machinery.**—R. J. Wilson, Denton, Texas, wants prices on cotton-bating machine.

**Electric Generator.**—The American Manufacturing & Export Co., 78 Marietta street, Atlanta, Ga., wants figures on electric generator five to seven and a half horse power, delivery to be made at Charleston, S. C. See "boilers and engines."

**Electric Motors.**—The Anderson Mattress Factory, Anderson, S. C., will want electric motor.

**Electric-power Plant.**—Proposals will be received until November 15 for erection of engines, boilers, generators and auxiliary equipment of

the Baltimore & Catonsville Construction Co., of Baltimore, Md. Specifications can be procured from S. W. Huff, engineer.

**Engine.**—The Anderson Mattress Factory, Anderson, S. C., will want engine.

**Feed Grinders.**—B. Baumgartner, Waxahachie, Texas, wants to correspond with manufacturers of feed grinders.

**Flour Mill.**—A. V. Kiser, Kline, W. Va., expects to buy 20-barrel roller-process outfit (water-power).

**Gasoline Engine.**—B. Baumgartner, Waxahachie, Texas, wants addresses of gasoline-engine builders.

**Ironworking and Machine Tools.**—The Greer Machinery Co., Knoxville, Tenn., wants prices and cuts on motor-driven ironworking machinery, 24-inch engine lathe, eight feet between centres, 30-inch engine lathe, ten feet between centres, and 30-inch drill press, all driven by electric motors.

**Lathe.**—The Cameron & Barkley Co., Charleston, S. C., is in the market for new or second-hand lathe, eight foot bed by three feet wide.

**Mattress and Spring-bed Machinery.**—The Anderson Mattress Factory, Anderson, S. C., will buy mattress and spring bed machinery, shuck hackler, etc.

**Mining Machinery.**—B. Baumgartner, Waxahachie, Texas, wants shaft, hoisting dumps, crushers and other machinery.

**Mining Machinery.**—The Glendon & Gulf Railroad, Glendon, N. C., may need coal mining machinery; Frank D. Jones, superintendent, Glendon, N. C.

**Mining Plant, etc.**—W. R. Hughes, Box 7, Pulaski City, Va., wants to buy double log washer (McLanahan make), sixty horse-power boiler, or two twenty five horse power boilers, twenty horse power engine, steam pump, with six inch discharge, five-inch stuck, 8 or 10-inch stroke (Cameron preferred); 1000 feet five-inch wrought-iron pipe, 100 feet six-inch wrought iron pipe, 1000 feet cast-iron trough, ten inches wide, seven feet ten inches long; 50 pound rails for 400 feet of track; second hand machinery will do if in good order.

**Nail Machine.**—C. F. Roth, Ironton, Ohio, wants twenty-five or thirty small cut nail machines, three fine and fourpenny, with self-feeders.

**Pumps.**—B. Baumgartner, Waxahachie, Texas, wants to correspond with manufacturers of irrigation pumps.

**Pumps and Pipe.**—See "mining plant."

**Rails.**—See "mining plant."

**Rails.**—The Blanchard Lumber Co., Room 310, Security Building, St. Louis, Mo., wants ten miles of 35 pound T rails for logging railroad.

**Railway Equipment.**—The Glendon & Gulf Railroad may need rolling stock, relaying rails, track bolts, angle bars, etc.; Frank D. Jones, superintendent, Glendon, N. C.

**Rice Fanner.**—C. E. Jarot, Florence, S. C., wants a fanner for cleaning rice.

**Roofing, etc.**—See "cotton gins."

**Saw Mill.**—C. E. Jarot, Florence, S. C., wants a wood saw of six cords daily capacity.

**Sea Moss.**—J. W. Thompson & Co., Bay City, Mich., are in the market for 100 tons of sea moss.

**Starch Machinery.**—Jas M. Hardie, Dallas, Texas, wants information regarding the manufacture of starch, cost of machinery, etc.

**Stave Machine.**—J. H. Campbell & Son Paisley, Fla., wants prices on stave machine for slack barrels, new or second-hand.

**Telephone Equipment.**—The Claiborne Telephone Co., W. D. Redus, secretary, Port Gibson, Miss., will buy telephone equipment.

**Water Works.**—Bids wanted for building water works at Bay St. Louis, Miss. Address the mayor.

**Well-drilling Outfit.**—The Southern Land Co., Duffield, Va., wants to buy or rent an oil well-drilling outfit.

**Wire-bending Machinery.**—Chas. Ferris, 1105 Yale avenue, Knoxville, Tenn., wants a wire-bending machine which will turn out wire U-shaped, No. 16 or 14 gage, automatic.

**Wire-nail Machinery.**—Jesse Atherton, Auburn, R. I., wants to buy second-hand wire-nail machinery.

**Woodworking Machinery.**—J. E. Greene, Athens, Ga., will need boring machines.

#### TRADE NOTES.

THE export trade of the Ledge & Davis Machine Tool Co., Cincinnati, Ohio, continues to increase. During the last ten days it has shipped eight machines to England, two to Russia, three to South America and two carloads to one party in Chihuahua, Mexico. The company has also delivered to the New York navy yards three heavy machines to be used in manufacturing guns and other ordnance.

AN ingenious device that seems to fill an important use is the Monarch engine stop and automatic speed-limit attachment. It has won the endorse-



ment of some of the leading power-users, and its general introduction is looked for. By simply pressing an electric button, which may be placed at convenient points throughout a factory, the engine may be quickly stopped. The possibilities of such a device as a protection against accidents to persons and damage to properties will be readily seen. It is made by the Monarch Engine Stop Co., 34 Maiden Lane, New York City.

LATE sales of feed-water heaters by the National Pipe Bending Co., New Haven, Conn., include the following: 250 horse-power, Albion Co., Valley Falls, R. I.; 150 horse-power, Hayden Furniture Co., Rochester, N. Y.; 400 horse-power, O. H. Sampson & Co., Greenville, S. C.; 400 horse-power, Electric Railroad Co., Corning, N. H.; 180 horse-power, American Axe & Tool Co., East Douglas, Mass.; 500 horse-power, Sessions Foundry Co., Bristol, Conn.; 100 horse-power, A. P. Dienst & Co., New York; 600 horse-power, Oneco Manufacturing Co., New London, Conn.; 250 horse-power, Thos. Morgan, Long Island City, N. Y.; 300 horse-power, Lozie Manufacturing Co., Thompsonville, Conn.; 125 horse-power, Southern Fertilizer Co., Atlanta, Ga.

### TRADE LITERATURE.

As a reminder of the excellence of Dixon's pencils, a November calendar is issued by the Joseph Dixon Crucible Co., Jersey City, N. J.

SOME attractive architectural designs in metal for roofing and siding are displayed in a catalogue issued by the Montross Metal Shingle Co., Camden, N. J. The quantity of such materials now being employed is growing in volume at a rapid rate. Elegance, durability and cheapness are factors which recommend these metal products.

A NEW catalogue of the Acme automatic engine is published. Some surprising results are shown with the use of this engine. For small users of power it affords an economical and effective agent. The fewness of working parts reduces liability to get out of order. Using kerosene as a fuel, there is no dust, ashes or smoke. What users think of this engine is shown by a number of letters published in this catalogue. The Rochester Machine Tool Works, Rochester, N. Y., manufacture the Acme engine.

SOME fine samples of ornamental work in iron and brass are shown in a new catalogue issued by the Ludlow-Saylor Wire Co., St. Louis, Mo. A feature of this catalogue is the magnificent elevator cabs and enclosures which are displayed. In these examples much good taste is evidenced, and the artistic effect is sure to enhance the interior beauty of any building where such work is placed. The well-known reputation of this concern for superior work has made its products widely known, and it is a recognized leader in this branch of industry.

COMPLETE and intelligent specifications are essential to the successful installing of pumping machinery. The marvelous efficiency reached in the production of this class of machinery has developed its utility in many new directions. Some points that will offer valuable advice in the employment of pumping machinery are contained in a pamphlet issued by Henry R. Worthington, 86 and 88 Liberty street, New York city. From such a source the publication can readily be accepted as an authority. The Worthington pumps are recognized as standards of the highest development achieved, and their fame is world-wide. Besides giving instructive data regarding the selection of pumps, an illustrated description of pumps for many uses is given. The edition of this pamphlet is a special one for the Atlanta Exposition.

A HANDSOME catalogue has been issued by the Fort Wayne Electric Corporation, Fort Wayne, Ind. While it is intended as a catalogue, it is really a reference book. It covers completely the Wood systems of electrical machinery and apparatus for light and power. Mr. James J. Wood, the designer of this machinery, stands as a prominent figure in the remarkable development of electrical machinery seen within the past decade. He has been connected with the mechanical and electrical arts since 1867, and still personally supervises the manufacture of all apparatus turned out by this corporation. Wood constant-current dynamos for arc lighting, which have been on the market for nearly fifteen years, still retain their original principles, although the details of construction, as well as the proportions of the several parts, have undergone many changes for the better. As it stands today, this dynamo embodies the perfection and improvements suggested by nearly fifteen years of practical experience in their manufacture and operation. A new 125-light dynamo is shown by the catalogue. This dynamo is designed and constructed to meet the rigid requirements of central-station work. It has an efficiency of 90 per cent. at full load, and is described as absolutely automatic in its operation, commutation taking place

sparklessly at all loads. An interesting chapter of the catalogue gives a glimpse at the past in arc dynamos. The first arc-light dynamo designed and built by Mr. Wood in May, 1879, is shown. It was driven by the one-and-one-half-horse motor, and so constructed that one light of 2000 candle-power, or three smaller lights of 500 candle-power each, can be run. It is rather curious to note that this dynamo is of the open-coil multipolar type, the field magnets being cast in one piece, while the armature is what is now known as the "iron-clad" variety. It is a three-phase dynamo and the currents can be used independently or together, while the commutator is identical in construction with that used on modern alternators. In fact, this dynamo compares favorably with the modern dynamos of today. A chapter describing the new Wood alternating-current apparatus and other improved types of electrical equipment make the catalogue a comprehensive and useful publication.

THE evolution in the production of cotton machinery is traced in a book sent out by the Pettie Machine Works, Newton Upper Falls, Mass. This establishment, now one of the most influential manufacturers of cotton machinery in the world, dates back to 1831, when it was founded by Mr. Otis Pettie, who was not only a builder of cotton machinery, but himself a cotton manufacturer. Studying the imperfections of the methods then in vogue, he set to work to devise better ways. As a result many important innovations were effected. During the year 1885 the Nashua and Jackson companies, of Nashua, N. H., tried some English cards, and the Amoskeag Manufacturing Co., of Manchester, N. H., after experimenting with the English revolving flat card, ordered a number of these machines for its new Jefferson Mill; and this step was enough to indicate to the observant that this pattern of card would ultimately be adopted by progressive manufacturers. The Pettie Machine Works then decided to build machines on this principle, adapted to American conditions and improved up to the point of American skill and finish, believing that on all scores a domestic product would commend itself to mill owners. The management went abroad, investigated thoroughly the merits of the various patterns of English carding machines on the market, and after careful expert test settled upon the flexible bend type of card. This step marked out an advance movement in the production of American cotton-mill machinery. Improvement in one department always involves betterments in others. Railway heads and drawing-frames are so closely connected with cards in the organization of a mill that the Pettie Company soon put itself in a position to furnish these machines. Especial attention was given to making machines for use in connection with the revolving flat card. It would be difficult to set limits to the beneficial effects that result from the improvement and standardizing of such machinery as these works turned out. The Pettie Company exerted a widespread influence by its pioneer policy, and the great merit of its products are understood and appreciated wherever progressive management prevails. This book is a fine example of the printer's art, and wide-awake millmen will find its pages readable and full of suggestion.

### A CREDIT TO ANY CITY.

#### Opening of Richmond's Jefferson Hotel.

One of the most notable improvements in the South is the Jefferson Hotel at Richmond, Va., which has recently been completed. While many Southern cities have already attained a reputation for fine hostelry, such as the De Soto at Savannah, the Ponce De Leon, Alcazar, Cordova, Royal Poinciana and Tampa Bay Hotels in Florida; the Aragon and Kimball at Atlanta, the Kenilworth Inn and Battery Park at Asheville; the Lookout Inn at Chattanooga and the Hygeia and Chamberlin at Fortress Monroe, this reputation will be increased by the truly palatial hotel in the Virginia capital. One of the features of the enterprise was the fact that it was conceived by a Richmond man and built by Southern capital at a cost of \$1,500,000.

Messrs. Carrere & Hastings, the noted New York architects, designed the building, which in general is of Renaissance style, modified by Italian and Spanish features. It varies from three to five stories in height, and above the roof rise two clock towers each 175 feet high. It has a Pompeian courtyard, containing fountains and gardens. The office of the hotel is a marbled court roofed with glass. The interior generally contains a great

deal of stone and marble work. On top of the structure are two roof gardens.

The design of the hotel and the quality of the material used in the exterior walls combine to give it a massive, yet beautiful, appearance, while the interior appointments, furniture and decorations are of the finest character. As may be imagined, the Jefferson is provided with the most modern conveniences for the comfort of its guests.

Considering the size of Richmond, it was a bold stroke to spend such a sum of money for a single hotel, but the company which owns it has acted on the belief that while Richmond is one of the gateways to the South, as well as one of its most important railroad centres, its picturesque location and mild climate give it special advantages as a resort city which will be appreciated by many winter visitors, while not a few of the tourists between New York and the South will be induced to remain over night here instead of making an unbroken journey.

There is no doubt that the American as well as the foreign traveler is fond of the luxury and comfort of a modern hotel, and will go miles out of his way to stop at one, even if only for a night. The fame of the Ponce de Leon and Tampa Bay Hotels, as well as the Asheville and other Southern resorts, has induced many people to visit the cities where they are located purposely to see them. The Jefferson will doubtless enjoy a very large patronage for this reason alone, and as a result Richmond will be visited by many of the most prominent people in the country, who otherwise would pass it by. It is not unlikely that the result of some of these visits may be the investment of outside capital in enterprises in the city.

Major Lewis Ginter, of the American Tobacco Co. (Allen & Ginter branch), deserves the credit for conceiving the idea of constructing this hotel, which would be a credit to New York or Chicago. He has been active in organizing the Jefferson Hotel Co., and has been, as already stated, the principal financier of the project.

### Never Had Such Demand for Land.

Mr. J. Walter Hosier, Suffolk, Va., who is selling farm lands in Tidewater and Eastern Virginia, in a letter ordering an addition to his advertisement in the *Southern States* magazine, says:

"I have never had so many correspondents from any one advertisement in all my life. It is remarkable what good you are doing."

Why not follow Mr. Hosier's example and advertise your town or your property in the *Southern States* magazine, published by the Manufacturers' Record Publishing Co., Baltimore, Md.

### Reduced-Rate Excursion to Washington via Pennsylvania Railroad.

On Saturday and Sunday, November 9 and 10, the Pennsylvania Railroad Co. will sell at all its Baltimore ticket offices excursion tickets to Washington and back at low rate of \$1.25, valid in each direction on all regular trains, and for return passage until Monday, November 11, inclusive.

### Atlanta via Pennsylvania Railroad.

For the Cotton States and International Exposition, which is proving a great success and being visited by increased numbers every day, the Pennsylvania Railroad Co. has arranged a most desirable passenger train service with through sleeping cars over their own and connecting lines. Excursion tickets are now being sold at the company's principal ticket offices in Baltimore to Atlanta and return at the following low rates and conditions:

- \$28.50. For season tickets, sold until December 15, 1895, limited to return until January 7, 1896.
- \$21.25. For 20-day tickets, sold daily until December 15, 1895.
- \$16.00. For 10-day tickets, sold Tuesday and Thursday of each week until December 24, 1895.

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## The American Cotton Oil Co.

### Preferred Stock Dividend No. 8.

No. 46 CEDAR STREET,  
NEW YORK CITY, November 6, 1895.

The regular semi-annual dividend at the rate of SIX PER CENTUM (6%) per annum upon the outstanding Preferred Capital Stock of the American Cotton Oil Co. has this day been declared out of the net profits of the Company, payable on the second day of November, 1895, at the office of Messrs. Winslow, Lanier & Co., bankers, No. 17 Nassau street, New York City, to the holders of record of such Preferred Stock upon the closing of the Preferred Stock Transfer Books. The stock transfer books of the Company will be closed on Friday, the 15th day of November, 1895, at three o'clock P. M., and will remain closed until Friday, the 6th day of December, 1895, at ten o'clock A. M.

By order of the Board of Directors,  
R. F. MUNRO, Secretary.



# ATLANTA EXPOSITION SUPPLEMENT.

## Visit the Exposition.

The attendance at the Atlanta Exposition has increased to such an extent that it may be said the trend of public opinion has turned in its favor, and that doubts as to the real value of the enterprise have now been dispelled, at least in the South. However, in order to insure its financial success, a very large attendance will be required between now and the closing day. During December the weather may have a very serious effect in diminishing the attendance, and upon the next four or five weeks the exposition managers have to depend largely for the bulk of the receipts necessary to pay their expenses.

The MANUFACTURERS' RECORD cannot urge too strongly upon the Southern people the duty they owe to themselves and to the South to attend this exposition if possible. As we have stated in previous articles, its benefit to them will far exceed the expenditure necessary to visit Atlanta and the exposition grounds. It will be the event of a lifetime to thousands who have seen it. But aside from this, the effect it will have in attracting the attention of capitalists and homeseekers to the South places the Southern people under obligations to those who have conceived and carried it out. The citizens of Atlanta and others who have freely given their thousands of dollars to make this exposition a success should have the hearty financial support of the entire South.

The Atlanta people have been generous to a fault, contributing lavishly to the entertainment of associations, delegations and prominent visitors to the exposition. Receptions and other entertainments have been given on a scale which would be a credit to New York, Chicago or any of the large cities of the country, and the expense of giving these entertainments has been cheerfully paid by the citizens of Atlanta out of their own pockets. While this is but a side issue, it is significant as showing the broad, hospitable and enterprising spirit which seems to pervade that community.

While the people of the South are at last convinced that the exposition is one of genuine merit, the fact should be strongly impressed upon them by the Southern press that they are under many obligations to the projectors and all who have assisted in this exposition and to the city of Atlanta, and should show their appreciation by their attendance. The exposition will undoubtedly be gaged to a certain extent, as others have been, by the attendance. If the number of visitors from day to day is as large as it merits, Northern people will become more and more interested, and the result will be a greatly increased attendance from all over the country. If the Southern people expect to have the exposition considered as a national enterprise, they must take up the matter themselves, and show their interest by their attendance. We trust that every paper in the South will bring this question before its readers, for it is a matter which touches Southern pride and the South's future.

## A Benefit to Southern Children

Hon. W. J. Northen, who has already earned the gratitude of Georgia people and the South in general for his practical work in behalf of immigration, has carried out a plan which will doubtless attract much attention among educators throughout the country.

Some time ago he conceived the idea of having the principal schools of the South represented at the Atlanta Exposition by the attendance of delegations of their pupils. He entered into an extensive correspondence, which included letters to all of the county commissioners and State school commissioners in the South, requesting that the schools be given a holiday for at least two days for the purpose of allowing the children to attend the great fair. The reason given was that they would learn more at the exposition in two days than they would through one month's ordinary study. Governor Northen has received a hearty response to these communications, and as the result of his efforts many thousand children of the South will have a great object-lesson by an inspection of the exposition. Among the States which will send delegations of children are Mississippi, Louisiana, Texas, Florida, Tennessee and others.

## THE EXPOSITION.

### Increasing Attendance—Work for the Exposition by the Railroads.

[Special Correspondent, MANUFACTURERS' RECORD.]

ATLANTA, GA., November 4.

If one may judge by the steadily increasing attendance, and that surely is good to base an opinion on, the exposition is rapidly working into the good graces and arousing the curiosity of the Southern people, and also those from the North. The success of the exposition may be judged by two things—the number of people who attend, and by their comments upon what they see. As to the first, as already stated, there is a steady increase, and the latter admits of no question, for the universal comment is that everything that has been done is well done. All talk of uncompleted work has ceased, because there is none to talk about, and the statements about big expenses and extortionate charges have been so completely refuted by facts that people have forgotten them. Now that the increase has begun, it is right to suppose that it will continue in rapidly increasing ratio, because those who come here see the interesting and beautiful exhibits prepared for them, and upon going home tell others, who, in turn, must see for themselves.

There is a feature of the exposition which is well worthy of a sincere compliment—that is, the uniform and unfailing courtesy of everyone connected with it toward all persons seeking information. The gentlemen who have it in charge, and they all are gentlemen in everything that makes that word an honorable distinction, find nothing a trouble, no questions too trifling to be fully answered and no act to much trouble to be performed. Their courtesy has extended to everyone in their employ. From the gatemen to the president, no one finds anything pertaining to the comfort and enjoyment of visitors an unpleasant task. Further, this same feeling has extended throughout the city of

Atlanta. Social Atlanta has been trying as only Atlanta can to outdo itself in its hospitable welcome to strangers and friends. The leading clubs and all society in general seems to have let the latch-string be on the outside, and those who have tasted of their genial hospitality cannot find words to express their enjoyment and appreciation of it. Certainly the directors of the exposition have a most powerful ally in the cordial Southern hospitality so freely accorded to all by the people of the Gate City.

It is not often that railroads feel called upon to expend large sums of money in exhibits or anything of that character at expositions. As a rule, there is shown possibly some of the old-fashioned and new styles of cars and engines and a few other things of this kind, but an effort to show as fully as possible the typical resources along their lines has not heretofore been tried. At the Atlanta Exposition it would seem that the reverse was the case. Two of the greatest of Southern railroad systems—the Southern and Plant—have erected buildings in which to install their exhibits, and the other lines all have made a great effort to attract the attention not so much of the traveler, though this has not been neglected, but of the farmer, manufacturer and miner. They are all showing both what they have and what judicious investment in the resources along their lines will bring. This is in line with the efforts being made by railroads throughout the South to attract immigration along their lines and develop the resources. It is a change in policy which can only be appreciated by those who were familiar with the conditions fifteen years ago—a time when a well-known manager of a well-known railroad said he didn't want any local business on his line, because nothing but the through business paid. There are, fortunately for the country, few roads left following such a misguided policy. Indeed, apart from the Memphis & Charleston, which has prevented any developments which were not absolutely forced upon it, I do not know of a single leading line which is not more than ready and willing to give material aid to industries and settlers of all classes. It is in line with the great era of development which is dawning on the South, and is going to make it truly the garden spot of the earth—the richest and most beautiful of all the lands in these United States. With its incomparable climate, fertile soils, great storehouses of mineral and forest wealth, its ports for foreign commerce and its nearness to the rich and as yet comparatively undeveloped countries of Central and South America, which will be at its door when the Nicaragua Canal is completed, it is not hard to predict the future of such a country, and the railroads which are developing the lands along their lines are simply laying the foundation for a traffic which in time, and that not so far distant, will bring them millions in revenue.

These railroad exhibits cannot be dismissed with a general description; they represent too much for that. The railroad that displays its resources shows also what is in the part of the South through which it passes, and between all of them nearly the entire South is represented. They will be described separately and fully.

The Gas Engine & Power Co., of Morris Heights, New York, has an exhibit in the Transportation Building of one of its 25-foot naphtha launches, and has also a 35-foot launch in service on the lake. These

boats are so widely known throughout the country that it seems almost unnecessary to describe them. Both of those exhibited are of the open type, with the engine in the stern, giving abundant room forward. It would be hard to imagine a pleasure launch which could give greater comfort, or which was capable of being more readily handled. The boat on the lake is provided with the usual wheel forward, but in addition a lever is placed on one side aft, near the engine, so that one person can both steer and attend to the latter. The work of reversing, stopping or starting the engine is accomplished by simply turning one wheel in the former, and both this and opening a small air valve in the latter two. The boat is so absolutely under control that it is difficult to realize its size or the speed which it can attain. The company's secretary, Mr. Mayo, who is in charge of the exhibit, has provided permits to sail in the boat at certain hours in the day, and anyone fond of water sports should not miss the opportunity to examine one of the most ingenious little engines ever placed in a launch. H. S. FLEMING, M. E.

## MR. ATKINSON'S VIEWS.

### Some Object-Lessons of the Atlanta Exhibition.

In a review of a trip through the South and a visit to the exposition, Mr. Edward Atkinson writes to the New York Post as follows:

"Having recently spent two most interesting weeks at the Atlanta Exposition and elsewhere in the South, I may venture to give reasons why everyone who has any interest in the industrial and economic progress of the South, and especially in the industrial elevation of the negro, should visit the exposition at Atlanta without fail.

"In the first place, attention may be called to the admirable condition to which the Southern Railway Co.'s system has been brought under its present management. Having passed over several hundred miles, returning from Atlanta by way of Chattanooga and Asheville, I can testify to the perfect condition of the roadbed, the effectiveness of the service, and the generally safe conditions of the whole trip.

"There are many reasons for making this trip at the present time, which I will name consecutively. A stop at Charlotte, N. C., will bring to the eye a complete epitome of the growth and disposal of the cotton plant. One may pass through an excellent modern spinning mill making such yarns as the cotton of that immediate neighborhood is suitable for, and from the windows of that mill may watch cotton-pickers gathering cotton in the field. He may examine the flower, the partially-open boll, which is one of the most beautiful objects in nature, and the ripe cotton waiting to be gathered. He may then pass to the gin-stand, not yet up to a true standard, where the cotton is mangled on the saw-gin, which we may hope may soon be invented out of existence by the substitution of an effective roller-gin which does not injure the staple, but which does not yet turn off an adequate quantity. He may then pass to the cottonseed-oil mill, one of the largest in the United States, intelligently managed by its sole owner, witnessing there the saving of the lint left on the seed by the gin, the conversion of the kernel into oil and oilcake, and he may pass from there to the fertilizer factory, in which many processes of interest will be found. Finally, he may pass to the cattle-sheds a little way off, where last year the owner fattened 2000 head of Texas cattle on the hulls and other refuse of the cotton-



seed-oil mill, mixed with corn ensilage, sending them in the best condition to the New York market. But, being dissatisfied with the quality of the Texas cattle, he is now moving out from the North Carolina mountains large droves of cattle graded with the short-horned Durham breed, which will be stall-fed and prepared for market in the next three months, then sent in prime condition to the North. Bearing in mind that this whole cottonseed-oil industry and the saving of the waste products of the oil mill itself have been developed from and since the Atlanta Exhibition of 1881, one may comprehend what benefits may be derived from such undertakings.

"Passing on next to Columbia, N. C., one may examine the very latest type of mill building, glazed with fine ribbed glass, by the use of which the light derived from outside is much increased and made very much more effective by diffusion, as compared to clear plain glass. There he may also witness what is perhaps as yet the most complete application of electric-power to cotton-spinning. The power is derived from the fall of water, the main generator being at the dam, the mill being some little distance away, and the motors being seventeen in number, each carrying sixty-five horse-power, scattered over the mill. At Columbia he may also witness the beginning of the construction of a cotton factory in a field from which the cotton plants were dug up in order to make way for the foundations.

"At these two points and elsewhere, if he is an expert, he may draw his own conclusions as to the relative advantages of the Southern States, especially the Piedmont district, in the manufacture of cotton; he may also take notice of the disadvantages, which may perhaps be of a more permanent character than the present apparent advantages. He will doubtless come to the conclusion that there is a broad field opening for the products of Southern cotton mills, but that perhaps the machinery of the South will be in addition to that of other sections rather than taking what other sections have or would have developed. In these several works he will witness the gradual but sure development of the negro as a permanent and necessary factor in the development of Southern resources and Southern industry. The aspect of this question as it is presented, by the way, will be more than confirmed by what he will find at the Atlanta Exposition. He will also witness some curious and beneficial effects of better social conditions and better laws now working in unexpected places.

"In former days cattle were allowed to range through the streets and roads, and therefore to range through the woods and unfenced fields. At present cattle must be fenced in; the roadways, woods and fields are therefore left free from their destructive effects. The result of this has been that one of the leguminous plants known as lespedeza and certain vetches, on which the cattle formerly browsed with the utmost avidity, preventing their diffusion, are now free to cover the scarred and gullied lands, pending measures for their improvement. These plants are holding the soil and rendering the color green even after such a fierce drought as has lately prevailed in that section. Through this influence and under the most judicious and careful instructions emanating from the Department of Agriculture, the gullied hillsides and waste fields in this section are being renovated. One of the most noticeable object-lessons of the exposition will be found in the department of forestry. It consists of a model of the Southern farm as it was, the Southern farm as it is in the process of renovation, and the Southern farm as it will be when the hillsides are terraced, the gullies filled, and the renovating plants, cow-pea vines and others, fully made use of for the restoration of fertility. It is also

interesting to note that a demand exists for cheap appliances to render the work of terracing simple and easy. These will be found in the exhibition.

"This brings attention to what has long been manifest. The 'pea-vine farmer,' so called, is the coming man of the South. The soil had long been washed from the hilltops and hillsides into the rich bottom lands, giving reason for Dr. Cloud, of Alabama, to denounce the old methods of agriculture in scathing words: 'You have gullied your hillsides and blasted your prairies, and, while possessing the best forage plants of the world, have rendered yourselves dependent upon the North for fodder to feed your cattle.' All that has changed. In the neighborhood of a great many cities there are sections known as 'pea ridges,' where the former poor whites held land of very low value, while the great planters owned and occupied the rich bottom lands. The great plantations have gone to pieces, some of them are almost waste places, others occupied only by negro renters, while the pea ridges, notably in the neighborhood of Columbia, S. C., have been brought by the 'pea-vine farmers' into a state of high fertility, and are now worth tenfold per acre what they were a few years ago.

"There yet remains one necessary act of legislation before the full potential of Southern soil can begin to be realized, and that is a dog-tax law. The South should be the most productive section of this country in wool, because the sheep could be carried alternately with cotton, on the same field, and nourished by cow-pea vines, turnips and cottonseed meal, thus rendering the soil more and more fertile, increasing the crop of cotton and adding the wool clip almost without cost. On the light upland soils there would be no danger of foot-rot or other disease, while the mountainsides and valleys already produce some of the finest wools of the country. But there is one great obstacle, and that is the cur dog. I recommended, through the columns of the Atlanta Journal, a change in the emblems of South Carolina and Georgia, in order to make their seals consistent with the facts. They have as yet proved incapable of establishing a dog tax. The cur dog is the dominant power, and I recommended the recognition of that fact on the seals of two States by substituting for the palmetto of South Carolina and the three columns of Georgia a yellowdog rampant with the motto 'cave canem.'

"Noting these great changes from the past and evidence of the potential of the future, we may pass on to Atlanta, a Western New England type of city with a Southern dash of audacity. What other small town, small relatively in numbers, would have dared undertake such an exhibition as can there be viewed? If one goes there merely as a sightseer to view a great bazaar or curiosity shop, he may be disappointed. If he expects to see architecture developed in apparent stone, rendering the whole exhibition a dream of beauty like that of Chicago, he will be disappointed. But if he looks only to see a very extensive exhibition of the potentiality of the cotton States placed in buildings which in their way and of their style are excellent, and when illuminated in the evening with electric light offer a dream of beauty rivalling Chicago, he will not be disappointed. The lake is there, the electric launches, and a great many wonderful effects may be witnessed in the evening by electric light or by moonlight. One who goes with a view to true observation will find in the contents of these buildings object-lessons in many respects more systematic, better arranged and more readily comprehended than even in Chicago. The government exhibit itself excels any other that I have ever seen. The Forestry Building, with its wonderful and startling collections of minerals and timber,

excels within its own method and scope any other that has ever been put before the eye. The development of manufactures of the miscellaneous kinds, wholly aside from the cotton manufacture, which now absorbs an undue amount of interest and attention, is very remarkable, showing the beginning of great diversity in the small industries which really make a State, and on which a varied and true progressive form of society may be established.

"Aside from these conspicuous exhibits, the less conspicuous but more important development of industry in the Negro Building and its contents will be manifest to every thinking man. The superficial person may pass by and through this building without being very much attracted by what he sees, but any one who has watched the progress of the colored race under all the disabilities to which they have been subject will find cause of amazement and the greatest cause for encouragement in what he witnesses. In point of fact, the recognition of the negro by the managers of the Atlanta Exposition, their assignment of a place for the building and the encouragement given to its occupancy, coupled with the recognition of the negro himself in the person of Principal Booker T. Washington at the opening of the exposition, marked a distinct parting of the ways in the question of race, color and condition. None are more enthusiastic in praise of the dignity and statesmanlike speech of Principal Washington than the Southern people themselves. It was pleasant to meet Mr. Washington as one of the forty eminent men, nearly all leaders in science, who formed the judges chosen to pass upon the exhibits at Atlanta. But this is not a mere incident. It is an evidence that the economic fact is becoming a part of the common knowledge of the people of Georgia, namely, that in the development of industry and in the progress of the material welfare of that State there can be and shall be no distinction based upon color. The fact is admitted that there are some branches of industry in which the colored race is necessary; that there are very many branches of industry in which it matters not what the color of the man or woman may be; while there are some other branches of industry in which the negro excels in which he has not attained a full standing, while there are some from which he is still excluded. A great change is in progress on all these lines.

"It was interesting to be informed by one of the greatest makers of steel in this country that at his works in Pennsylvania he has a large gang of colored men who are employed at one of the vital points in making steel of the highest type, for the reason that they do better work than the average workman in the steel works, and can be depended upon more fully for the timely attention and for accuracy in judgment such as is required at a critical point.

"The employment of the colored race in constructing mills and works of every kind and upon the railways is noticeable. In point of fact, although perhaps not yet admitted, it is manifest that the people of Georgia mean to take advantage of the blunders of their neighbors in the treatment of colored workmen, and by giving them equal opportunity and by treating them justly they may bring over from neighboring States into their own State the most skilled and effective workmen without distinction of race or color. The fines imposed upon agents who enter certain neighboring States for the purpose of promoting colored emigration will have no effect. There used to be an underground railway among the colored people; there is today an underground telegraph. And with their growing intelligence the colored men as well as the white men trend to that point where they can earn the best wages under the best conditions, enjoy the best schools and produce their goods or render

their service at the lowest cost to their employers.

"A conversation with a very intelligent colored man from Mississippi may be noted. I asked him if the educational test of Mississippi was adverse to the progress of the colored people in gaining political rights. He answered: 'No. If they will continue it a sufficient number of years the colored people who can meet the test will exceed the white people. The colored people are more urgent in their effort to attain the elements of education than the poor whites yet are.'

"One disappointment is met. The improvement of cotton is in the air—in ginning, making up the bales and sending it to market, yet this branch was not extensively shown at Atlanta, the reason being that the great changes which are impending are hardly yet a year old. From having devoted too much time and attention to cotton in their former exhibition, perhaps too little time and attention has been given to cotton in its primary stages in this exhibition, but that fault will not be obvious except to special experts whose interest has been devoted to the cotton plant.

"One factor in improvement is very conspicuous in the building devoted to agriculture, namely, the great number of the leguminous plants—peas, beans, clover and the like—which, drawing nitrogen from the atmosphere, renovate the soil. Among these the peanut may become one of the most conspicuous. Having fourteen years ago made a complete forecast of the future of the cottonseed oil industry, of which the product is now rated at \$30,000,000 to \$50,000,000 a year, I ventured at this exhibition to predict as great a development in peanut oil, meal and fodder as has occurred during the last fourteen years in respect to cottonseed."

#### RAILROADS AT THE EXPOSITION.

##### Displays of Modern Rolling Stock Used on Southern Lines.

To the general public, as well as railway men, the transportation exhibit at the Atlanta Exposition is full of interest. In size and variety of rolling stock it will compare very favorably with that of the World's Fair. So many persons, unfamiliar with the South, have an impression that Southern railroads are about twenty years behind the times that the present display is truly a revelation to them. First and foremost is, of course, the magnificent Pullman train, which was seen for the first time by the public at the World's Fair. This train has never been in use, and since its visit to Chicago has been carefully stored away, so that it is practically new today. It comprises an observation car, compartment car, a sleeper, a dining car, a smoking and baggage car and a parlor car, and in design and finish seems to have reached the point of perfection. Even to those accustomed to the luxuries and comforts of modern railway traveling, the many conveniences and improvements to be noted everywhere on this train are a surprise. The upholstery is of the richest character; the decorations are simply superb, and while elaborate in design are in harmony with the rest of the appointments. The compartment car is, as its name indicates, a series of private compartments, which are especially acceptable to ladies, each compartment or stateroom insuring the utmost privacy. The regular sleeping car is a model of its kind, and while the arrangement of berths is similar to that in the ordinary Pullman sleeper, special pains have been taken to have it combine all the latest features. The dining car is a study of the beautiful. It is literally a hotel on wheels. In the lockers and drawers, carefully guarded by porters, are \$11,000 worth of solid silver in knives, forks, spoons, dishes, comprising a complete service for the table. The china is of the finest im-



ported ware in delicate designs prepared expressly for this car. As may be imagined, the service is complete in every detail. The smoking and baggage cars are especially built for the purposes intended, and the smoking apartment appeals especially to the lovers of the weed. As one enters the parlor car he feels that it has been appropriately named in every sense of the word. It is very inviting with its library of choice selected books, its rich carpeting and easy chairs.

The exact cost of this train is known to no one but the Pullman Company. All kinds of estimates have been placed upon it, but the writer understands from railway experts who have made a careful examination and have included the cost of the furniture, table service, etc., that \$250,000 would be a low figure to place upon it. In the dining car there is \$5000 worth of wrought-iron work alone in ceiling decorations and other appointments. The fact that the Pullman Company has placed this train on exhibition at Atlanta indicates how deeply it is interested in transportation in the South, and how it regards this section as a field for its operations.

On the next track is another Pullman train, which, while entirely of day coaches, shows how Southern railway companies are endeavoring to provide the very best rolling stock for the convenience of their patrons. This train is owned by the Plant system, and was made at the Pullman shops. It is painted in the olive color so extensively used by the Pullmans, and consists of a baggage and combination car and two day coaches. In front is a magnificent type of a modern locomotive with 72-inch drivers, and cylinders 20x24 inches in diameter. This is the kind of train which the Plant system intends operating in its service between Florida and the North over the Savannah, Florida & Western branch lines. While no extra fare is charged on this train, the conveniences and comforts afforded are almost equal to those of the regulation palace car. It is, indeed, worthy of its place.

But a short distance away is the famous locomotive "General," which is noted for its war record. On a placard attached to the cab is a brief history of its capture by the Union soldiers and the daring run over the Western & Atlantic Railroad during the war, when the Union soldiers made an effort to burn several bridges and otherwise destroy the utility of the railroad as a means of transporting supplies to the Confederate army. As is well known, the party was captured before accomplishing its design. The old "General" is not unlike the wood-burning engine seen in some parts of the South today, but it is vastly different from the fine engines which are now being used on the Western & Atlantic and the Atlanta & West Point roads in hauling the freight and passenger trains which are operated on this system. The Florida Central & Peninsular, which is an important link in the steel highways between the North and Florida, exhibits a Rogers locomotive of the mogul express type, with extremely large drivers, and built especially for hauling heavy trains at a high rate of speed. It is only one of a number of locomotives which this company has ordered recently, rendered necessary by its constantly-increasing tourist business.

An engine with a history is No. 2427, of the Richmond Locomotive Works. Readers of the MANUFACTURERS' RECORD are already familiar with some details of the remarkable performance made by this engine. It was sent out several months ago from Richmond to make trial trips with freight and passenger cars over the Cleveland, Cincinnati, Chicago & St. Louis, Chicago & Rock Island, the Chicago & Northwestern and other railways. The idea was to show railway experts what could be done with a compound locomotive of the most modern type. It hauled every kind of rolling stock

from dirt trains to Pullman cars, was speeded at the rate of sixty to seventy miles per hour, pushed and pulled heavy coal trains up difficult grades and around sharp curves, used whatever coal was furnished by the railway companies, and was subjected to the ordinary wear and tear of both the freight and passenger locomotive. After a tour of several months in the West and Southwest it was sent to Atlanta, and is now in the Transportation Building just as it came from its last trip, no repairs whatever having been made. During its record, which embraced over 25,000 miles of service, this engine did not break down once, and required only the ordinary shop repairs given to locomotives doing routine work. It proved superior in many points to those built at some of the best works in the country, and, in fact, has created a sensation in the railroad world. No. 2427 has six drivers and all the features of the modern compound engine. It is constructed in the best manner, and railroad men will note at the first glance the size of its boiler and the massiveness which attends almost every feature of its construction. It has already attracted a great deal of attention since being placed on display.

As might be expected, the Southern Railway Co., in addition to its very attractive building, has some fine specimens of rolling stock in the Transportation Building. One of its modern freight cars, capable of carrying a very heavy tonnage, is shown; also, a passenger and combination model car, as well as two locomotives. Like the freight car, the others are of modern design, and are handsomely painted, beautifully upholstered and finished. When one considers the quality of passenger service furnished by the old Richmond & Danville but a few years back, and contrasts it with this display, the change indeed seems wonderful. Almost as great a contrast is afforded when examination is made of the kind of road built by the Southern of today and that laid down years ago. Sections of the roadbed are shown near the Southern building proper. In 1855 the rails were what might be called scrap iron, actually nailed to light wood ties and ballasted simply with red clay. The rails in 1864 were but a little heavier, and apparently capable of supporting only the lightest character of passenger or freight car. In this case clay was substituted for stone between the ties. The section representing 1895 is of the heaviest steel rail, the track laid straight as an arrow, carefully spiked on hardwood ties sound to the heart and heavily ballasted with crushed stone. It gives an appearance of solidity which is very reassuring to the timid railway passenger, and it would seem almost impossible for a train to leave a track so carefully and safely constructed.

The progress made in railroad building and service in the South is very strikingly illustrated by the Seaboard Air Line, which has a model of the first locomotive in operation on its roads in 1840. This was the Tornado, which has but two drivers and two small wheels to support it. While the model is of wood, it is very realistic, and when compared with the truly magnificent locomotive representing the type now in use on the Seaboard Air Line, makes a contrast which has to be seen to be appreciated. Its modern locomotive is of the Richmond compound type, and is one of a number which are being used to haul the famous Atlanta special and other trains over the Seaboard between Atlanta, Portsmouth and Washington. These engines have a reputation for pulling unusually heavy trains at a high rate of speed, and for continuous service. They are giving the utmost satisfaction, and have already made a record for themselves in the South.

Two other fine specimens of locomotives are ones shown by the Baldwin Locomotive Works, No. 14,428 and a six-driver engine

of a kind now in service on the Louisville & Nashville Railroad, No. 37. Both of them are of the largest size, and especially built for heavy work. When contrasted with some of the engines in use but a few years ago on the Louisville & Nashville and other Southern roads, they afford a vivid illustration of the rapid progress made in the improvement of rolling stock in the South. The Louisville & Nashville has two of its modern freight cars equipped with air brakes, ventilated and provided with all the latest improvements for service of this kind.

### The Importance of the Deposits of Phosphate of Lime and Pyrites in the South.\*

By Jno. M. McCandless.

The importance of the deposits of phosphate of lime in the Southern States of the Union is far greater than the average citizen not connected with the fertilizer trade would suppose.

There are today three important phosphate-fields in the United States. The first and oldest in point of development is the South Carolina or Charleston; the second is the Florida, and the third and latest in point of development, though really the first and earliest, according to the geological record, is the Tennessee field.

A brief descriptive outline of these three great fields may not here be inappropriate. The South Carolina deposits are found in the tertiary formation. The area covered by this field is about seventy miles long and thirty miles wide. It reaches from the headwaters of the Wando river, in the northeast, to the mouth of Broad river, in the southeast, the heaviest deposits being in the neighborhood of Charleston.

The deposits consist mainly of nodules, found at variable depths from the surface, embedded in a clay matrix. The average yield per acre in this field is 750 tons. It has been estimated by Wyatt, from such data as were attainable, that the probable future yield of the territory might be approximated at 14,000,000 tons, or enough to last twenty-eight years with a monthly production of 50,000 tons.

The average of a large number of analyses of Charleston rock yielded me 59.76 per cent. bone phosphate of lime, 8.40 per cent. carbonate of lime and 6.35 per cent. of oxide of iron and alumina. This rock, though not of as high grade as that found in Tennessee and Florida, is a most excellent material for the manufacture of acid phosphate, and has won a well-deserved reputation for that purpose both at home and abroad.

The Florida field is of great extent and produces three distinct varieties of phosphate—first, hard rock, extensively found in the more northerly and westerly ridge of the State; second, river pebble, principally found in Peace river, also in the Alafia and other streams; third, land pebble, originating in Bartow, Fla., continues southward to Charlotte Harbor, underlying the entire country at varying depths and for varying widths. Anything like an attempt at calculating the available phosphate in this great territory would be only a wild guess until much more complete and thorough exploitation has been carried out; suffice it to say that the quantity is simply enormous. As to quality, numerous analyses of hard rock have yielded me from 65 to 83 per cent. bone phosphate of lime, with an average of about 75 per cent., and 2.7 per cent. oxide of iron and alumina.

Peace-river pebble, on averages of a large number of analyses, has given me 62 per cent. bone phosphate of lime and 2.60 per cent. iron and alumina. The land pebble

\*This paper was prepared by Professor McCandless, of Atlanta, for the meeting of the Southern Mining Convention on October 1, but as Professor McCandless and others withdrew from that so-called convention, it has not been made public before.

usually shows 5 or 6 per cent. more bone phosphate than the river pebble, and, unless very carefully washed free from its adhering clay matrix, considerably more alumina.

All these different grades are, however, excellent material for the manufacture of high grade superphosphates.

The third and last great phosphate-field in the United States is the Tennessee. This field is in Middle Tennessee, about forty-five miles southwest of Nashville. The phosphate here occurs in a different manner from that of any other known deposit. It is found in strata or beds of varying thickness and at varying depths below the surface. Geologically it is very old, belonging to the Devonian age. It is mined either, like coal, by drifting and pillaring, or, when the overburden is not too great, by simply removing it and mining out the phosphate rock which lies upon the limestone beneath. The average thickness of the strata which are worked is about two feet. There are several varieties of the rock, though there are only two of commercial importance, the blue and the gray, the blue being in greater quantity and the gray usually higher in quality, though this is not always the case. Numerous analyses have yielded me from 60 per cent. as a minimum to 80 per cent. maximum of bone phosphate of lime in the rock which is shipped from the mines; it also carries from 1.5 to 3.50 per cent. oxide of iron and alumina.

As to the quantity of the rock, it is very great. It is idle, in the present state of exploitation of the Florida and Tennessee fields, to attempt to give anything like a definite calculation as to the quantity of available phosphate; suffice it to say that there are many millions of tons, enough to supply the demands of the world's agriculture for several generations. The total shipments from South Carolina in 1894 was 493,500 tons, from Florida 558,990 tons, or together 1,052,790 tons. The shipments from Tennessee in 1894 were about 17,000 tons. The production of this new field will doubtless increase in the future.

The enormous increase in the demand for phosphate is shown by the fact that in the year 1868 only 12,262 tons of phosphate were produced in South Carolina, and in 1894 493,500 tons were produced, in spite of the fact that Florida had in the meanwhile entered the field and produced in the same year 558,990 tons.

Of course, these new discoveries and this enormous production have demoralized values, and miners have been compelled to take an unreasonably low price for their phosphate, but these ills will cure themselves. The consumption will not decrease, but, on the contrary, must heavily increase in order to restore the vast quantities of phosphate annually removed from the soils by the crops of the country. Surely, we of the South have reason to congratulate ourselves on the partial and bountiful manner in which nature has lavished on us far more than our share of the world's supply of phosphate. Mines of priceless wealth are these, beside which silver and gold and gems fade into nothingness. The world can dispense with jewels; they have only a meretricious value. It could even dispense with gold and silver, and find another medium of exchange, but it cannot do without phosphate. It has been called "agriculture's staff of life; the bread of agricultural existence."

Phosphate means blood and bone, bread and meat; nay, it means life itself, for without it there can be none of these. Of it can be truly said, "it is bone of our bone and flesh of our flesh." If any one thing on earth may be said to have intrinsic value, that one thing is phosphate, and the nations of the earth for generations yet to come shall send out their fleets from over the seas, their trains and caravans from over the hills and plains, and pour out their gold and silver within our gates, that they



may carry away that with which to make bread and meat to feed their children. Chemistry has won some marvellous triumphs over nature since Lavoisier, a hundred years ago first founded it as a real science. She has produced sugar from crude and unpromising material. Recently a French chemist has produced real diamonds in an electric crucible by subjecting sugar charcoal to intense heat and pressure, at the same time protecting it from the action of the air. Science is on the eve of still greater triumphs. She is on the eve of granting to agriculture that inestimable boon, cheap ammonia, which is today the costliest element in plant food; hence the costliest element in human food. Science is about to accomplish this great triumph by rendering atmospheric nitrogen available as plant food; nay, she may even dare to hope at some time in the future to cross that last Rubicon of the defiant theologian, and "make a blade of grass." But never in her wildest dreams can she hope to make something out of nothing, or, in other words, to make an element, and phosphorus is an element. Never can the limited store in the earth be increased by one single pound whilst annually hundreds of thousands of pounds are wasted, for, according to the figures given by Dr. Wiley in his address at the Buffalo meeting of the American Association for the Advancement of Science, the cereal crops of the United States alone annually remove from the soil 2,714,585,473 pounds, or 1,357,292 tons, of phosphoric acid.

The acreage planted in these crops is 143,200,000. We have, therefore, annually removed from the soil of the United States by the cereal crops alone nineteen pounds of phosphoric acid, or 41.47 pounds of bone phosphate, per acre. From the whole acreage, therefore, 2,969,252 tons of pure phosphate of lime are thus extracted from the soil by the grain crops alone.

In order to replace this, I have calculated that 4,569,650 tons of 65 per cent. phosphate rock will be required, or about four and a-half times as much as our total annual production of phosphate rock.

Now, as the quantity of phosphoric acid in the soil is quite limited, one-tenth of 1 per cent. representing a fairly rich soil, it will be seen that the exhaustion of phosphate from such a soil is a question of only a limited time, when, if phosphate be not returned to it in the same quantity abstracted by the crops, the soil must become barren. More especially is this the case with the grain crops, where nearly all the phosphates taken from the soil by the plant exists in the grain or berry, which is sold and exported away from the land which produced it, principally for human consumption, and is partly buried, according to the methods of our modern civilization, six feet under ground in cemeteries, and the remainder is swept through sewers, streams and rivers into the ocean. It is therefore seen that, with our rapidly-multiplying populations and the exhaustion of the virgin arable lands of the continent, the existence of these mines of phosphatic wealth in our borders assumes immense importance, as they will be drawn upon in annually-increasing ratio to furnish sustenance for the teeming peoples of Europe and America.

As was remarked by Dr. Wiley in the address above referred to, only the novelist might be able by the aid of an unfettered imagination to say how many human beings the United States alone will be able to feed in comfort. With the aid of scientific agriculture and the help of the agricultural chemist we may safely say that a thousand million people will not so crowd our means of subsistence as to make Malthus more than a pleasing theory.

Bearing a most important relation to these phosphate deposits are the deposits of pyrites or bi-sulphide of iron in the United States. Now, as you know, phosphate of lime, precious treasure-house of

plant food though it is, is locked and barred securely against loss by wise provision of nature, owing to the fact that phosphate of lime is practically insoluble in the water of the soil, and in order to be of any value to the plant as food it must become soluble. The great chemist Liebig first found the key to unlock the door in the form of sulphuric acid. Phosphate rock treated with sulphuric acid yields up its treasure of soluble phosphate of lime in a form in which the plants can readily drink it up and appropriate it. Sulphuric acid, therefore, at once becomes a subject of intense interest to him who is interested in the development of agriculture. Only a few years ago nearly all the sulphuric acid produced in this country was derived from Sicilian sulphur or brimstone. Our manufacturers were therefore wholly at the mercy of the monopoly controlling the Sicilian sulphur mines, but of late years the use of pyrites in lieu of sulphur has been steadily increasing, with the result of lowering the cost of sulphuric acid and cheapening the cost of fertilizers to the farmer. The pyrites mines so far developed in the United States are few in number. The Davis mine in Franklin county, Mass., the sulphur mines and the Arminius mines of Louisa county, Va., and the Gaston mine of the Carolina Sulphuric Acid Manufacturing Co. at Blacksburg, S. C., are the three producing mines. The Davis ore carries an average of 49 per cent. of sulphur, the Virginia mines are quoted as carrying 44 per cent. of sulphur, the Gaston ore from Blacksburg, S. C., carries an average of 48 per cent. sulphur. This last mine, it is stated by the president of the company, Mr. John F. Jones, of Blacksburg, was worked during the war by the Confederate government for sulphur. About three years ago the mine was reopened by the present company and has since been steadily worked. During the year 1894 the domestic production of pyrites was 114,462 long tons. Of this amount Massachusetts furnished 39,940 tons, Virginia 62,522 tons, and South Carolina 12,000 tons, which product was worth at the mines more than \$366,000. During the same year we purchased from foreigners 146,000 tons of ore, principally Spanish, for which we sent out of the country nearly \$1,000,000.

The year 1894 being one of great financial depression, our consumption of pyrites was comparatively small, the total consumption being 260,000 tons, as against 316,000 in 1892. With the return of commercial prosperity our consumption of pyrites must increase by leaps and bounds, for there can be no question that sulphuric acid can be produced from domestic pyrites at interior points far more cheaply than from Sicily sulphur and foreign pyrites. Here in the South nine to ten-cent cotton will greatly stimulate the production of the great staple, and there will in consequence be a heavy demand for commercial fertilizers, since the farmers have this year had set before their eyes a great object-lesson, and have learned that it takes something more than barnyard manure to make cotton. They will learn to disregard those false prophets who advise them to abandon commercial fertilizers, and, guided by the light of experience, will continue to reduce their acreage, but increase their consumption of commercial fertilizers until they are all farming on the intensive system and making one acre produce what four produced before. The man who fertilizes highly and wisely holds the key to the situation; even the prospect of four and five-cent cotton does not alarm him.

Outside of the enormous demand for sulphuric acid for agricultural purposes, there are many other uses accompanying the advancing civilization of a great people which create a demand for that great acid, the amount of which used in a country has been said to be a "measure of its civilization." All of these causes will inevitably

create a demand for good pyrites property. The popular idea as to the amount of available pyrites is that "the woods are full of it." This is a great mistake, for, while pyrites is a very common mineral, deposits of really good quality and great quantity are rare. Outside of the three producing mines already briefly alluded to, I only know of two or three others in this whole section of the country that are suitable candidates for the hand of capital to develop them into producers of merchantable ore. One of these is already well on the road to development. I refer to the property of the Chestatee Pyrites Co., whose mines are located in Lumpkin county, Ga. Col. Geo. W. Scott, of Atlanta, one of the phosphate princes of the world, is largely interested in this property. I learn that they will soon overcome some of the great natural obstacles in their way, and expect to be raising ore for market in less than a twelvemonth. The few remaining valuable properties of this mineral will soon be appropriated by eager capital. Were I asked to say, after coal, what two minerals the South could least afford to spare of all the priceless mineral riches reposing in her bosom, I should answer without hesitation her phosphates and her pyrites.

#### A NEW ERA FOR THE SOUTH.

The Exposition and Other Notable Events Mark the Present Year—Improvement of Southern Railroads.

Not since the war period has the South come so prominently before the public as during the present year.

It has been a matter of general surprise that she should undertake to hold an exposition during a period of such commercial and financial depression on such a scale and so comprehensive in its scope as to be designated the Cotton States and International Exposition, and universal interest has been attracted to the undertaking during the progress of the work, and now that it is completed and opened to the public there is admiration and praise for the enterprise and public spirit of which the South has given such a shining example in the complete realization of her ambitious efforts to give to the world an exposition so complete and perfect in every detail that, while not the largest, it will be the most satisfactory and creditable collection of exhibits ever made.

While the public mind has been largely concentrated upon this great enterprise at Atlanta, Ga., other events have transpired upon Southern soil calculated to make this year memorable, and to mark epochs in the restoration of fraternal feeling quite as important to the South and to the country as the epoch of commercial growth which may be said to be marked by the exposition.

These events, which followed each other closely during the month of September, were the annual encampment of the G. A. R. at Louisville, the battle encampment of the Sons of Veterans at Knoxville, and the dedication of the Chickamauga National Park at Chattanooga, which, in connection with the formal opening of the exposition on September 18, occasioned such a movement of blue and gray veterans, Grand Army posts and other organizations, and of citizens from all parts of the country, southward, and all about the same time, that a very unusual and sudden demand was made upon the transportation resources of the railroads, occasioning no little misgiving as to their ability to accommodate comfortably and transport speedily the great number of people that crowded the stations bound for Dixie.

Whatever of misgiving there may have been on this subject is attributable to a very general lack of knowledge of the fact that Southern railroads are no longer what they were but a few years ago, and that in no respect has the South exhibited material progress more potently than in the improvement of her railroads, whether we consider them separately or as constituting a great trunk system, such, for instance, as that known as the Southern Railway, a really

gigantic combination of the principal Southern railroads under a single management, with headquarters at the national capital, which ramifies every part of the South and Southwest, with through connections North, East and West with the Pennsylvania and other great systems.

Upon the Southern Railway, which must necessarily be the main artery of travel to and from the Atlanta Exposition, largely devolved the task of carrying the crowds referred to, and the measure of its success can be judged from the fact that no complaints of any sort have been heard, and not the slightest accident or delay has occurred.

Many of these old veterans, who had not traveled south of Mason and Dixon's line since the war probably, as they were conveyed by fast express trains past battlefields and scenes of interest in connection with the great conflict of arms in which they were engaged, were more than surprised to find that in roadbed, equipment, motive power, speed, and in the most modern appliances for safety and comfort, the Southern Railway compared favorably with the roads of the North, and while the trip was enjoyable in every respect, they were agreeably surprised at the admirable character of the railroad service. T. E. C.

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Of the value of such advertising, considering the character and scope of this Supplement, it is needless to say anything.

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